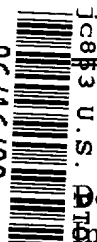


06/16/00



JC833 U.S. PTO

06-19-00

UTILITY PATENT APPLICATION TRANSMITTAL
(Only for new nonprovisional applications under 37 CFR 1.53(b))

JC714 U.S. PTO

09/595416



06/16/00

Docket No. : 39674/JEC/I148
Inventor(s) : Thomas E. Ward III, Kenneth Hancock and Douglas B. Macrae
Title : SYSTEMS AND METHODS FOR DISPLAYING AND RECORDING
CONTROL INTERFACE WITH TELEVISION PROGRAMS, VIDEO,
ADVERTISING INFORMATION AND PROGRAM SCHEDULING
INFORMATION
Express Mail Label No. : EL386999182US

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, D.C. 20231

Date: June 16, 2000

1. ☒ **FEE TRANSMITTAL FORM** (Submit an original, and a duplicate for fee processing).

2. **IF A CONTINUING APPLICATION**

☒ This application is a continuation of patent application No. 09/120,488.

Prior application information: Examiner N. Flynn; Group Art Unit: 2711

☐ This application claims priority pursuant to 35 U.S.C. §119(e) and 37 CFR §1.78(a)(4),
to provisional Application No. .

3. **APPLICATION COMPRISED OF**

Specification

76 Specification, claims and Abstract (total pages)

Drawings

10 Sheets of drawing(s) (FIGS. 1 to 10b)

Declaration and Power of Attorney

☐ Newly executed

☒ No executed declaration

☐ Copy from a prior application (37 CFR 1.63(d))(for continuation and divisional)

4. ☐ **Microfiche Computer Program** (Appendix)

5. ☐ **Nucleotide and/or Amino Acid Sequence Submission** (if applicable, all necessary)

☐ Computer Readable Copy

☐ Paper Copy (identical to computer copy)

☐ Statement verifying identity of above copies

6. **ALSO ENCLOSED ARE**

☐ Preliminary Amendment

☐ A Petition for Extension of Time for the parent application and the required fee are
enclosed as separate papers

UTILITY PATENT APPLICATION TRANSMITTAL
(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.: 39674/JEC/I148

- ☐ Small Entity Statement(s)
 ☐ Statement filed in parent application, status still proper and desired
 ☐ Copy of Statement filed in provisional application, status still proper and desired
☐ An Assignment of the invention with the Recordation Cover Sheet and the recordation fee are enclosed as separate papers
☐ This application is owned by pursuant to an Assignment recorded at Reel , Frame
☒ Information Disclosure Statement (IDS)/PTO-1449
 ☐ Copies of IDS Citations
☐ Certified copy of Priority Document(s) (*if foreign priority is claimed*)
☐ English Translation Document (*if applicable*)
☒ Return Receipt Postcard (MPEP 503) (should be specifically itemized).
☒ Other: Appendix A

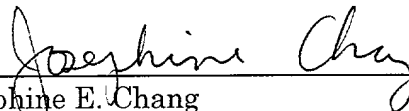
7. CORRESPONDENCE ADDRESS

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626/795-9900

JEC/daa

5 SYSTEMS AND METHODS FOR DISPLAYING AND RECORDING CONTROL
INTERFACE WITH TELEVISION PROGRAMS, VIDEO, ADVERTISING
INFORMATION AND PROGRAM SCHEDULING INFORMATION

CROSS-REFERENCE TO RELATED APPLICATIONS

10 This application claims priority of U.S. Patent Application
No. 09/120,488, filed July 21, 1998 which claims priority of U.S.
Provisional Patent Application Nos. 60/055,237, filed August 12,
1997, 60/068,375, filed December 22, 1997, 60/053,330, filed July
21, 1997, 60/055,761, filed August 14, 1997, 60/061,119, filed
15 October 6, 1997, 60/071,811, filed January 20, 1998, 60/071,812,
filed January 20, 1998, and 60/071,882, filed January 20, 1998,
and U.S. Provisional Patent Application No. 60/034,784, filed
December 19, 1996 and PCT International Application No.
PCT/US97/23852, filed December 19, 1997, the disclosures of all
20 of which are incorporated herein by reference, as if fully stated
here, for all purposes.

FIELD OF THE INVENTION

25 The present invention relates generally to television
systems, and more particularly, to the display of, and recording
control interface with, television programs, video, advertising
information and program scheduling information.

BACKGROUND OF THE INVENTION

30 Television viewers have historically analyzed the
information provided by television program schedule guides to
select television programs to watch. Historically, television
program schedule guides have listed the available television
programs by day of the week, time of day, channel, and program
35 title. Historically, only hardcopy television program schedule

guides were available. More recently, as illustrated by the Levine Patent, U.S. Patent No. 4,908,713, television program guides have become available in electronic form.

The earliest versions of on-screen electronic program guides ("EPG") provided for the storage of program schedule information in an electronic memory connected to the television receiver and generally provided for the on-screen formatting and display of the program schedule information on the television screen. The early EPGs typically overlaid the television programming. Furthermore, viewer interaction capabilities with early EPGs was extremely limited.

Later EPGs provided viewer-to-EPG interaction improvements and provided Picture-In-Guide ("PIG") display of the television program simultaneous with the display of the EPG. International Application No. PCT/US95/11173 (International Publication No. WO 96/07270), the disclosure of which is incorporated by reference herein for all purposes, illustrates such an improvement.

SUMMARY OF THE INVENTION

The present invention is an improvement over previous EPGs in that it provides, among other things:

- A. Improved viewer interaction capabilities with the EPG;
- B. Improved viewer control of video recording of future-scheduled programming;
- C. Improved features to the EPG display and navigation;
- D. Parental control of the EPG display;
- E. Improved television program information access by the viewer;
- F. Improved opportunities for the commercial advertiser to reach the viewer;
- G. Improved product information access by the viewer;
- H. Creation of a viewer's profile;

I. Utilization of viewer profile information to customize various aspects of the EPG; and J. Utilization of viewer profile information to provide customized presentation of advertising to the viewer.

DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG.1 is a graphic representation of a sample screen display of the EPG.

FIG.2 is a drawing of a portion of a remote control device that shows keys for activating various functions of the EPG.

FIG. 3 is a graphic representation of a sample on screen EPG display depicting the EPG's on-screen Grid Guide in the programming scrolling mode.

FIGS. 4a and 4b is a graphic representation of a sample on screen EPG display depicting the EPG's on-screen Grid Guide in the channel-scrolling.

FIG. 5 is a graphic representation of a sample on screen EPG display depicting the EPG in the Watch Scheduling mode.

FIG. 6 is a graphic representation of a sample on screen EPG display depicting the Watch/Record Schedule screen of the EPG.

FIG. 7 is a graphic representation of a sample on screen EPG display depicting the top level theme screen display of the EPG.

FIG. 8 is a graphic representation of a sample on screen EPG display depicting the second-level theme screen display of the EPG.

FIG. 9 is a graphic representation of a sample on screen EPG display depicting the Channel Guide function of the EPG.

FIGS. 10a and 10b are graphic representations of sample on screen EPG displays depicting one embodiment of the feature of

presenting additional information concerning the subject matter of a highlighted Panel Ad Window.

5

DETAILED DESCRIPTION OF THE INVENTION

The disclosure of International Application WO96/07270, published on March 7, 1996 is incorporated fully herein by reference. The present invention is an improvement on the electronic program guide (EPG) disclosed therein. The apparatus disclosed in the referenced PCT application is used to generate the screen displays described below.

In FIG. 1 of the drawing, one embodiment of the EPG with Ad Window and Advertising Messages is shown. In FIG. 1, a television screen display 10 is shown. Display 10 could be generated by a conventional television receiver with interlaced scan lines, by a VCR, by a PC monitor with progressive scan lines, or by another other type of video display device. In the upper left hand corner of the screen is a PIP window 12. Below window 12 are Panel Ad Windows 14, and 16 ("Ad Windows"). Windows 12, 14, and 16 each typically occupy about 1/9 of the total screen area. The remainder of the screen area is typically occupied (moving from top to bottom of the screen) by an action key bar 18, a navigation bar 20, a grid guide 22 ("Grid Guide"), and an information box 24 (the "detailed information area"). In the embodiment pictured in FIG. 1, the position of the windows, and other user interface features, including the action key bar, navigation bar and Grid Guide, are fixed. In another embodiment of this invention, as is described further below, the position and size of the windows and other user interface features are customizable by the viewer.

In FIG. 2 of the drawing, one embodiment of a remote controller 26 for activating the functions of display 10 is shown. Remote controller 26 could have other keys for activating the functions of a user video device, such as a television

receiver, a VCR, or a cable box. Remote control 26 has up, down, right, and left arrows keys 28, 30, 32, and 34, respectively, for
5 controlling the movement of a cursor 36 on display 10. Cursor 36 can select, i.e., highlight, any of windows 12, 14, or 16 by pressing arrow keys 28 to 34, any of the titles and channels in Grid Guide 22 by pressing arrow keys 32 and 34, or navigation bar 20 by pressing arrow keys 32 and 34. Windows 12, 14, and 16 are
10 highlighted by adding a border around the window or changing the color of the border, if the border is permanent. The titles and channels in Grid Guide 22 and navigation bar 20 are highlighted by changing color.

Highlighting of windows and/or viewer selections from the
15 Grid Guide and/or navigation and EPG on screen display components may be accomplished in a number of other ways. For instance, the border of a selected window, or the selected Grid Guide or navigation component, can be made to appear to flash. Another way to highlight a viewer selection is to make the selected
20 window or feature appear to become brighter than the rest of the on screen display. Yet another way to highlight a viewer selection is to blur all portions of the on screen display, except for the viewer selected component. Still another way to highlight a viewer selection is to make all portions of the on
25 screen display, except for the viewer selected component, appear transparent. Still yet another way to highlight a viewer selection is to add animation to the selected component. When a portion of the EPG is selected, the system issues graphic display commands to the on screen display (OSD) controller to
30 implement one or more of the desired enhancement technique(s).

The viewer enters the Guide Mode illustrated in FIG. 1 by pressing a "guide" key 35 and returns to the full screen Television Mode by pressing key 35 again or by pressing the "select" key. A real time television program is displayed in
35 window 12. A translucent overlay of the PIP window 12 can

1 39674/JEC/I148

display the title, channel (local number and/or station name),
and status (locked or unlocked) of window 12 over the television
5 program so the viewer can still see the entire image.

The PIP Window can be locked or unlocked. The "lock/unlock"
mode is user controlled. To lock or unlock the PIP Window, the
viewer can use a PIP button on the remote control device, or can
highlight and press the Lock/Unlock EPG action button. The
10 lock/unlock status is recorded and maintained until the status
is reset by the viewer. That is, the lock/unlock status for the
PIP Window in the EPG is maintained when the viewer leaves the
Guide and later re-enters the Guide, including when the viewer
turns off the television. If the viewer selects the "lock"
15 status, the last channel to which the tuner was set in the PIP
Window continues to be displayed regardless of the actions
exercised by the viewer. In the unlocked status, the channel
highlighted by cursor 36 in Grid Guide 22 is displayed if the
Grid Guide is displaying currently telecast programs and the last
20 currently telecast channel that was highlighted is displayed if
the Grid Guide is displaying future programs.

There are generally three results to leaving the Guide,
depending upon the way the viewer leaves the Guide. If the
viewer, while in the EPG, wants to watch in full screen mode the
program shown in the PIP Window, then the viewer can press the
25 Guide button on the remote control device. If the viewer, while
in the EPG, highlights a particular channel in the Grid Guide,
and then presses the "select" button, the viewer will leave the
Guide to view in the full screen mode the television program that
the viewer highlighted in the Guide. If the viewer, while in the
30 EPG, presses the "clear" or "cancel" button on the remote control
device, then the viewer will leave the Guide and return to the
television program that the viewer was watching immediately
before entering the Guide.

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1 39674/JEC/I148

Typically, an ad for a future telecast program is displayed in window 14. This ad is linked to the time and channel of the program in RAM so the viewer can watch or record the program automatically by pressing the blue left action button to watch the program, or the green right action button to record the program.

Typically, an ad for a product or service is displayed in window 16. This ad is linked to more information about the product or service in RAM so the viewer can read one or more pages about the product or service in window 16 by pressing an "info" key 40 one or more times. Alternatively, this ad is linked to the time and channel in RAM that an infomercial about the product or service will be telecast so the viewer can watch or record the infomercial automatically by pressing "select" key 42.

Bar 18 displays a blue button 44 and/or a green button 46 with legends that depend upon the context of the information displayed on the screen. Remote controller 26 has corresponding keys 48 and 50, respectively, to activate the functions represented by blocks 44 and 46.

From window 12, 14, or 16 the viewer moves to grid guide 22 by pressing arrow key 32. (From grid guide 22 the viewer moves to window 12, 14, or 16 by pressing arrow key 34.) In grid guide 22 the viewer moves cursor 36 to highlight one of the nine tiles in which channel and title are displayed by pressing arrow keys 28 and 30. The viewer can view program listings scheduled at future times by pressing keys 32 or 34 to move horizontally about the Grid.

From grid guide 22 the viewer moves to navigation bar 20 by pressing arrow key 28. Initially, the center button is highlighted. To highlight a different button, arrow key 32 or 34 is pressed. To enter the screen represented by the highlighted button, "select" key 42 is pressed.

In grid guide 22 details about the program represented by the highlighted tile are displayed. If more information is available this fact is indicated by an icon and such information is displayed in the area occupied by grid guide 22, instead of the grid guide by pressing "info" key 40. To return to the grid guide, "info" key 40 is pressed again. After an action button has been pressed or an icon on navigation bar 20 has been activated, an instructional prompt may be substituted for the program information in information box 24.

In addition to the tiles representing television programs, a virtual channel ad can be displayed in grid guide 22 on a tile 52. A virtual channel ad may promote, for instance, a current or future television program. Such a virtual channel ad for a television program is linked to the time and channel of the program in RAM so the viewer can watch or record the program automatically by pressing "select" key 42 in the manner described in the referenced application. More than one virtual channel ad may be stored in RAM, but preferably only one such ad is displayed at a time.

Reference is made to the TV Guide Plus+ 98 User Interface Specification v1.42stv, which is attached hereto as Appendix A, the disclosure of which is incorporated by reference as if fully stated herein, for more description of the invention.

One embodiment of the hardware for this invention includes a circuit board consisting of a gate array that provides all of the control functions for access by the processor (e.g., Motorola 68000), control of memory (dynamic RAM and external ROM), and some peripheral functions such as infrared ("IR") input and output, frequency synthesizer for the paging system, and data acquisition from the paging system. Inside there is a module for creating an on-screen display including a programmable DMA (direct memory access) controller, a color lookup table that provides for a field called a color index that can be used to

select a more complicated color (more bits than can be expressed
in the bit map), first-in-first-out ("FIFO") memory for ordering
5 the pixels (which allows the system to write the pixels as fast
as the system is capable of writing the pixels and then sending
the pixels to the display according to a prescribed timing.
Included in the chip is a timing subsystem that produces a number
of different timing signals of varying frequency--from clocks to
10 long millisecond time measurement, and interrupts.
Synchronization signals for the television monitor are also
generated by the internal timing subsystem. The system also
typically includes circuits for functions including but not
limited to: data receiver, memory controller, timing interface
15 with the processor, data deinterleaving, error correcting, and
synchronous timing generator with horizontal and vertical
counters.

Another feature of one embodiment of the EPG system hardware
is that display list hardware is capable of both video input and
20 output on the same DMA hardware. The display processor is
comprised of a video section and a FIFO section in an ASIC. The
system has multiple clocks. The display memory has the
capability to store 8 screen tiles in a horizontal plane.

Described below in more detail are the following
25 improvements to an EPG:

- A. Improved viewer interaction capabilities with the EPG,
including:
 - 1. A Variety of Operating Modes.
 - 2. Joy Stick and Track Ball Viewer Remote Interface.
 - 30 3. Contextually Sensitive EPG On-Screen Control
Mechanisms.
 - 4. Watch Scheduling.
 - 5. "All Channel" Guide Format, Channel Guide Format
and "Next"/"Previous" Channel Guide.

B. Improved viewer control of video recording of future-scheduled programming, including:

- 5 1. Recording program displayed in PIP window.
2. Recording "Regularly."
3. Record Function rerun filter for "Regularly" recorded programs.
4. Skip recording instruction.
- 10 5. Automatic Record List Update.
6. Recording on recordable Digital Video Discs.
7. Speed Sensitive Tape Capacity.
8. Record Instruction Conflict Resolution.
9. Recording from Theme Guides.

15 C. Improved features to the EPG display and navigation, including:

1. E-mail.
2. Multiple Viewable "Windows."
3. Translucency on-screen effects.
- 20 4. On-screen notifications.
5. Theme navigation bar.
6. Improved Scrolling through the EPG and Smooth Scrolling.
7. "Jumping" in the EPG.
- 25 8. Thematic color-coding of program schedule.
9. Controllable number of days of programming.

D. Parental control of the EPG display;

E. Improved television program information access by the viewer, including:

- 30 1. Virtual Channel Ad Slots and Ad Window program advertisements.
2. Additional detailed information for viewer access including link to the Internet.

35 F. Improved opportunities for the commercial advertiser to reach the viewer, including:

1. Ad Window product-related video clips and infomercial recording.
2. Ad Window program-related recording.
3. Panel Ads.
4. Virtual Channel Ad Slots.
5. Placeholder Ads
6. Full Screen ads.
7. Automatic watch channel.
8. Ad Features.

G. Improved product information access by the viewer, including:

1. Ad Window product detail.
2. Ad Window product-related recording.
3. Ad Window program-related recording.

H. Creation of a viewer's profile, including:

1. Collecting viewer profile information.
2. Analyzing and characterizing viewer profile information.

I. Utilization of viewer profile information to customize various aspects of the EPG; and J. Utilization of viewer profile information to provide customized presentation of advertising to the viewer.

A. Improved Viewer Interaction Capabilities With The EPG

1. A Variety of Operating Modes.

Under the improved EPG system, there are multiple modes in which the viewer can operate the television.

a. **Television Mode.**

In the Television Mode, the viewer watches a full screen display of the television video programming. In one embodiment, in order to enter the EPG, the viewer presses the "Guide" key on

the viewer's remote control device. In another embodiment, the EPG Grid Guide is the default mode. In the case where the EPG
 5 Grid Guide is the default mode, when the viewer turns the television on, the first thing that the viewer sees is the EPG in Grid Guide Mode as is described more fully below. In one embodiment, at the viewer's option, as identified in the EPG set up procedure, the viewer can override the EPG Grid Guide default
 10 mode by selecting to automatically enter the Television Mode whenever the viewer first turns on the television. During setup procedures, the viewer can further instruct the EPG to automatically tune to the last-watched channel as identified when the viewer last turned off the television. The viewer can
 15 further instruct the EPG to automatically tune to the viewer's favorite channel, as is deduced from analyzing the viewer's profile information, described below. Alternatively, the viewer can instruct the EPG to automatically tune to a particular channel, e.g., a news channel such as CNN.

20 **b. EPG Grid Guide Mode.**

In the EPG Grid Guide Mode, the EPG displays the Grid Guide, or in the alternative, a Channel Guide. The viewer can request that the Grid Guide occupy the entire screen, be displayed over
 25 a portion of the screen as an overlay of the video television programming, or, in the preferred embodiment, occupy only a portion of the screen, typically 2/3 of the entire screen, while continuing to show the video television programming in the PIP Window of the screen. In the preferred embodiment, multiple
 30 Windows are displayed for the viewer, as are further described below, including at least: the EPG/Grid Guide Window, the PIP Window, and the Ad Window.

Scrolling through the Guide is described below. The viewer can press the "Menu" key on the viewer's remote control device
 35 to go to the top of the Guide.

The viewer can return to the full screen display of the video television programming in a number of ways. One way is to
 5 press the "Guide" key on the viewer's remote control device. Another way is to press the "Select"" key on the viewer's remote control device when the on-screen highlighting/cursor is highlighting a particular program listing on the Grid Guide for a program that is available for real-time viewing. Another way
 10 is to press the "last channel" key on the viewer's remote control device to return to the program the viewer was watching before entering the Guide, or the last program on which the PIP window was locked (an option explained further below).

15 **1.) Theme Guide Function.**

The EPG provides various Theme Guides, e.g., sports, movies, news, etc. Each Theme Guide presents program listings associated with a particular theme, e.g., all sports programs. The Theme Guide display format only displays program listings, and
 20 consequently channels, for certain times of the day, with content appropriate for the selected theme. For instance, the Sports Theme Guide will display, typically in schedule order, only listings for channels that carry sports programs that are scheduled during a certain period of time, e.g., 48 hours, 8
 25 days, etc.

2.) Record Selection Function.

In the Record Selection Function, also referred to as the Recording Function, the viewer instructs the EPG what programs
 30 to add to the Record List, which is the list of programs and related programming schedule information, for programs that the viewer want to have recorded. As is further described below, the viewer can identify the frequency/regularity with which the viewer wants to record each program listed in the Record List.

The viewer can enter the Recording Function in a number of ways. The viewer can press the "Record" key, if there is one, on the viewer's remote control device. Alternatively, the viewer can "press" a "Record" action button on the EPG display.

3.) Watch Scheduling Function.

In the Watch Scheduling Function, also referred to as the Watch Function, the viewer instructs the EPG what programs to add to the Watch List, which is the list of programs and related programming schedule information, for programs that the viewer want to watch. As is further described below, the viewer can identify the frequency/regularity with which the viewer wants to watch each program listed in the Watch List.

The viewer can enter the Watch Function in a number of ways. The viewer can press the "Watch" key, if there is one, on the viewer's remote control device. Alternatively, the viewer can "press" a "Watch" action button on the EPG display.

4.) Data Download Function.

In some embodiments, data for the EPG schedule, and/or supplemental information relevant to the program listings, and/or advertising data, can be downloaded to the memory resident at the viewer's television system. In the preferred embodiment of the download data system, the viewer will ask the EPG to make certain types of information available; the EPG will use an index of where to find the information and will automatically connect to the appropriate data source and will download the information.

Data for the EPG schedule, and/or supplemental information relevant to the program listings, and/or advertising data, can be downloaded from various sources. In one embodiment, data is downloaded from the Internet. In other embodiments of the download data system, the viewer is asked to tune to a particular

channel at a particular time if the viewer is interested in accessing and downloading particular types of information.

5

c. Internet Mode.

Not all embodiments require that data be downloaded to the EPG memory. In one embodiment, the EPG scheduling data, supplemental data and/or advertising data and the software to
 10 format, display, and navigate the EPG scheduling data, supplemental data and/or advertising data is accessed by the viewer's television system through a direct link between the viewer's television system and the Internet.

In one embodiment of the above-described direct-link to the
 15 Internet, the viewer's television is connected to the Internet by telephone line via modem, by cable modem, by other two-way communication device, including wireless modem communication devices and by other conventional methods of communicating with the Internet. The initial connect web site address may be
 20 supplied, for instance, through information transmitted to the viewer's television over the vertical blanking interval (the "VBI"). The viewer may also be provided with a selection of multiple EPG Internet web sites. The viewer uses the remote control device to select one of the EPG Internet web sites

25 The viewer's television system is programmed to emulate computer on-line access to the Internet. Once the connection between the viewer's television system and the Internet is made, the user has two-way communication with the on-line Internet service provider of the EPG related information. The user can
 30 then navigate through the EPG. Furthermore, in one embodiment, in which keyboard user interface is available, the user can enter chat rooms or other interactive services.

35

2. Joy Stick and Track Ball Viewer Remote Interface.

5 The viewing user's video interface (UI) comprises the viewer's remote control device and the television monitor screen display. In one embodiment of the present invention, one improvement in the UI offered by the present invention is the use of a joy stick as a substitute for the traditional remote control device configuration of a circle of four (4) arrow keys (up, 10 down, left and right) with a select key in the center. The joy stick UI provides a user-friendly interface with the EPG. Use of the joy stick is intuitive. The viewer/ user does not have to look at the remote once the viewer's finger contacts the remote control joy stick. Accordingly, the viewer can control the UI while simultaneously watching, without interruption, the 15 on-screen display.

In another embodiment of the present invention, one improvement in the UI offered by the present invention is the use of a track ball as a substitute for the traditional remote control device configuration of a circle of four (4) arrow keys 20 (up, down, left and right) with a select key in the center.

In both the track ball and the joy stick embodiments, there is an on-screen "cursor." The viewer uses the track ball or joy stick remote control device to navigate the cursor to any 25 location on the screen, much as a PC user navigates a cursor on a PC terminal window.

3. Contextually Sensitive EPG On-Screen Control Mechanisms.

30 "Keys," "buttons," menu "bars," and other such visual control mechanism devices are displayed on-screen for the control of the EPG. Typically, the visual control mechanism devices are sensitive to user-interaction. Typically, the viewer uses the UI remote control device to highlight a particular on-screen 35 control device. Typically, the viewer then uses the UI remote

control device to select the highlighted on screen control device.

5 In one embodiment of the present invention, positionally constant on-screen control devices are contextually sensitive. That is, a particular button can be consistently displayed on every screen of the EPG in the same position and with the same color, from one screen to the next, from one mode to the next. 10 With contextually sensitive control devices, even though the on screen control device has the same appearance and placement from one screen to the next and from one mode to the next, the button has a different function, and if selected, will provide a different result, depending upon the screen on which the button appears. In one embodiment, the function of the on-screen 15 control device is textually described next to the control device, or, if the control device is sufficiently large, on the face of the control device.

For instance, in one embodiment, as illustrated in FIGS. 3, 20 4a and b, 5, and 6, the EPG displays two buttons at the top of each of the four screens pictured. In each of the four different screens, the top left button has a different function. (As referred to in this application, the directions "left" and "right" refer to the viewer's left and the viewer's right, 25 respectively.) FIG. 3 depicts the EPG's on-screen Grid Guide in the programming scrolling mode. In FIG.3, the viewer's-left button is described as "Watch." FIGS. 4a and 4b depict the EPG's on-screen Grid Guide in the channel-scrolling. In FIG. 4a and b, the viewer's-left button is a toggle button, alternately 30 described as "Lock" and "Unlock." FIG. 5 depicts the EPG in the Watch Scheduling Function. In FIG. 5, the viewer's-left button is described as "Cancel." FIG. 6 depicts the Watch/Record Schedule screen of the EPG. In FIG. 6, the viewer's-left button is described as "Remove."

4. Watch Scheduling.

5 The EPG provides the viewer with the opportunity to select
 program titles, scheduled for delivery at future times, to watch.
 By selecting program titles, the viewer builds a "watch list."
 Watch list options and instructions provide functionality
 parallel to the EPG's Record Function. Instead of automatically
 recording the programs selected, the Watch Function automatically
 10 turns the television on, if it is not already on, and
 automatically tunes the television to the channel scheduled to
 deliver the designated program, if the television is not already
 tuned to that channel. This feature provides the viewer with the
 opportunity to watch a program of special interest at the
 15 scheduled time even if the viewer has forgotten about the
 scheduled delivery. This feature will also provide for parental
 selection of program viewing for children.

The viewer can enter the Watch Scheduling Function in a
 number of ways. The viewer can enter the Watch Scheduling
 20 Function by selecting that Function from the EPG menu. The
 viewer can also enter the Watch Scheduling Function by
 highlighting an Ad Window displaying an advertisement for a
 future-scheduled program or a Virtual Channel Ad Slot displaying
 an advertisement for a future-scheduled program (both of which
 25 are described elsewhere in this application).

The viewer can designate any program on the Watch List as
 a program that the viewer wants to watch regularly. In one
 embodiment, if the viewer enters the Watch Scheduling Function
 by highlighting an Ad Window or Virtual Channel Ad Slot, then if
 30 the viewer chooses to designate the program as a "regular" watch,
 the designation expires after a certain amount of time if the
 advertiser stops running the advertisement. The planned
 expiration is an incentive to the advertisers to renew their
 advertisements.

5. "All Channel" Guide Format, Channel Guide Format and "Next"/"Previous" Channel Guide.

5 The viewer can choose to view the Grid Guide in an "all channel" format which displays in some order every channel and the listings of programs already in progress or scheduled to begin at some time in the future. In the "all channel" format, the viewer scrolls up and down the listings for each channel and
10 from left to right and right to left to view the listings for a channel scheduled for different times during the day. Typically, the left-most portion of the guide begins with the earliest scheduled programs and continues to the right serially through the listings scheduled at later times during the day.

15 As an alternative, the viewer can choose to view the programs scheduled for one channel at a time (a "Channel Guide"). In this format, the viewer scrolls up and down the listings for a single channel as scheduled for different times of the day. Typically, the "top" of the Channel Guide begins with the
20 earliest scheduled program and continues serially through the listings scheduled at later times during the day. FIG. 9 is a graphic representation of a sample on screen EPG display depicting the Channel Guide function of the EPG.

25 In the "Channel Guide" format, the viewer can select to view the Channel Guide for the "next" channel or for the "previous" channel. In one embodiment, the "Next" and "Previous" Channel Guide is an option on one of the EPG menus, action buttons or task bars. In another embodiment, the viewer's remote control device provides "Next" and "Previous" Channel Guide keys. In
30 another embodiment, the viewer uses the up and down arrow keys to navigate to the next or previous Channel Guides.

B. Improved Viewer Control Of Video Recording Of Future-Scheduled Programming

5

1. Recording program displayed in PIP window.

As explained in more detail below, the EPG provides for multiple "windows." One window displays the currently tuned program. When the viewer enters the EPG from the television mode, the PIP window is "highlighted." In one embodiment, highlighting of the PIP window is accomplished by a color change of the border around the PIP window. While the PIP window is highlighted, the viewer can instruct the EPG to record the displayed program. In one embodiment, the viewer records the displayed program in the highlighted PIP window by pressing the record button on the viewer's remote control device.

2. Recording "Regularly."

One embodiment of the present invention provides the viewer with the option of recording a particular program "regularly." The "regularly" option can be selected when the viewer highlights a particular program title on the EPG Grid Guide. Viewer selection of the "regularly" option instructs the VCR control system to record the particular title on the selected channel at the selected time slot any day of the week that the program is telecast. If a telecast of the selected title is preempted by another program, the new program is not recorded. The change in the telecast schedule is determined by comparing the title of the selected program to the title of the program actually telecast. In one embodiment of the invention, it is assumed that the title of the program actually telecast is carried in the vertical blanking interval of the television signal. When the viewer has instructed the EPG to "regularly" record a particular program, if the selected program is preempted by another program, the preempting program is not recorded and the EPG displays a message

notifying the viewer that the selected program was preempted and was not recorded.

5

3. Record Function rerun filter for "Regularly" recorded programs.

The EPG is capable of detecting reruns. The identification of the program as a rerun may be carried in the VBI of the program broadcast. In another embodiment, the rerun identification information is available in the program detail. In one embodiment of the Record Function, when the viewer selects the "Regularly" record option, the viewer is also given the option of filtering reruns. If the viewer selects the rerun filter option, then every time the program is regularly scheduled, the EPG determines whether or not the program episode to be delivered is identified as a rerun. If the episode is a rerun, and if the viewer has selected the rerun filter option for that program title, then the EPG will not record the episode.

20

4. Skip recording instruction.

In the EPG's Record Function, the viewer selects a program title for recording. Once a program title has been selected, the viewer is asked to select a record-scheduling option. The viewer can select Once, Daily, Weekly, or Regularly as a record-scheduling option. If the viewer has selected a record-scheduling option of Daily, Weekly, or Regularly, one embodiment allows the viewer to skip recording of the program one time. The One-time skip instruction would result in the EPG not recording the program title, even though the record instruction for that program title remained in the record list.

In the EPG's Record Function, the viewer can turn select the skip instruction for all programs on the Record List, or for selected programs on the Record List. This feature might be used when the viewer goes on vacation. The programs remain on the

Record List. At the viewer's option, the viewer can turn off the skip instruction for all programs on the Record List, or for
5 selected programs on the Record List.

5. Automatic Record List Update.

In the EPG's Record Function, the EPG will detect changes in program scheduling as compared to record instructions for
10 particular program titles designated for recording. In one embodiment, when the EPG detects program scheduling changes, the Record List is automatically updated with the schedule change information. For instance, if a sports event runs longer than the originally scheduled time, a packet of scheduling update information can be transmitted over the VBI that updates the time of the programs scheduled to be telecast after the sports event. The EPG detects the VBI scheduling updates and updates the recording list to permit the recording of any programs following the sports program to be recorded as appropriate.

6. Recording on recordable Digital Video Discs.

The viewer can instruct the EPG to record programs on recordable Digital Video Discs (DVD's). Because of the extended storage capacity of DVD's, the viewer can instruct the EPG to
25 record and index an extended period of programming. For instance, the viewer can instruct the EPG to record and index, e.g., 4 hours of CNN news broadcasts certain number. When the viewer is ready to view the DVD recording, the EPG displays the DVD index on screen. The viewer can then select to view either
30 the entire DVD, or only those portions of the recording in which the viewer is interested.

In one embodiment, program-level indexing of recorded programs is created. In another embodiment, intra-program indexing is created by using information transmitted in the VBI
35 of the video transmitted. In this embodiment, a recording of CNN

would likely show indexing breakdowns that include themes, such as "International News," "National News," "Sports," "Entertainment," "Business & Finance," and "Weather."

In yet another embodiment, intra-program indexing is created using some constant time interval. The index shows a start and end time interval, and audio content excerpts.

In still another embodiment, indexing software analyzes the audio content of the program recorded ("Content Analysis Program"). This is typically in addition to using all indexing breakdown information transmitted in the VBI of the program. The Content Analysis Program uses speech and voice recognition technology to analyze, among other things, such variables as: changes in announcers, changes in tone, changes in speed, topical words, geographic locations, substantive words. The Content Analysis Program then creates a topical index in addition to the theme index described above.

20 7. Speed Sensitive Tape Capacity.

The EPG's Record Function provides a Record List that identifies the titles of programs that the viewer has selected to be recorded. The speed sensitive tape capacity feature uses color coding to identify in one color the titles that would fit on one tape at a fast tape speed and to separately identify, with another color, the titles that would fit on one tape at slow tape speed.

30 8. Record Instruction Conflict Resolution.

The EPG's Record Function recognizes conflicts in viewer record instructions. In one embodiment, the EPG's Record Function prompts the viewer to resolve the conflict. For instance, in the Record Function, the EPG would accept viewer instructions to record a particular program. The EPG compares the newly received record instruction to as-yet incompletely

executed, or as yet unexecuted, record instructions in the Record List. If the EPG detects an overlap in date, time and duration
 5 between the newly received instruction on the one hand and one or more of the remaining record instructions in the Record List, the EPG formats a message to the viewer describing the conflict. The message describes to the user the newly received instruction to record a particular program and the conflicting record
 10 instructions in the Record List. In Record Function, the EPG will prevent entry of conflicting instructions into the Record List. The EPG will require that the viewer revise the record instructions to eliminate the conflict. In one embodiment, if the EPG detects that one recording instruction pertains to a "one
 15 occurrence" program that conflicts in date, time and duration with a recording instruction to record a "regularly recorded" program, the EPG would format an on screen message that would suggest to the viewer that the viewer select the "one occurrence" program to be recorded. In another embodiment, the EPG
 20 automatically "decides" to override the "regularly record" instruction and will record the "one occurrence" program with no further intervention by the viewer.

One way to resolve a recording instruction conflict is to chose an alternative occurrence of the conflicting program for
 25 recording. In one embodiment of the EPG, the viewer can highlight a particular program in the EPG and request a list of all occurrences of that program for the week. The viewer can then instruct the EPG to record an alternative occurrence of the program. In an alternative embodiment, the viewer can view an
 30 alphabetical list of all programs for the week. The viewer can mark a program for viewing or recording from the alphabetical list.

9. **Recording From Theme Guides.**

5 The EPG provides various Theme Guides, e.g., sports, movies,
news, etc. When the viewer selects a particular Theme Guide,
e.g., the Sports Theme Guide, the viewer can instruct the EPG to
record an event while in the Theme Guide without having to exit
the Theme Guide and go to the program Grid Guide. For instance,
in the Sports Theme Guide, the viewer instructs the EPG to add
10 a sports event to the Record List by clicking on the box score
for a particular sports event and/or on the sports program
listing in the Sports Theme Guide.

15 C. **IMPROVED FEATURES TO THE EPG DISPLAY AND NAVIGATION**

1. **E-mail.**

In the preferred embodiment, the EPG interfaces with the
Internet/World Wide Web. In the preferred embodiment, the viewer
can access the Internet to send and receive e-mail.

20 In another embodiment, the television terminal is separately
addressable, and the head end controls e-mail traffic between
viewers on its network. To facilitate two-way transmission a 900
or toll free number is used as a back link. E-mail can then be
sent to the appropriate viewer through the VBI to the viewer's
25 separately addressable television.

2. **Multiple Viewable "Windows."**

The EPG UI screen provides for multiple viewable "windows."
One window presents the EPG Grid Guide. Another window presents
30 the picture-in-picture (PIP) window on which the currently tuned
program is displayed. Another window displays advertising
information (the "Ad Window"). Advertising may be in the form
of graphics and textual information. Alternatively, advertising
may be in the form of video display. In one embodiment, the Ad
35 Windows are interactive.

As the viewer enters the EPG from the television mode, the PIP window is highlighted. The viewer can lock the PIP window.
 5 Locking the PIP window allows the viewer to continue to watch the television program being displayed in the PIP window while the viewer scrolls through the EPG program Grid Guide. Unlocking the PIP window causes the video for the program title highlighted in the Grid Guide to be displayed in the PIP window.

10 As described further below, the viewer can also highlight the Ad Window. Doing so will cause additional text describing the product to be displayed in the detail box are of the EPG Grid Guide.

15 If the Ad Window displays information about a particular product, pressing a record button will instruct the EPG to record an infomercial, to the extent that one is scheduled for a future time. Alternatively, the Ad Window can display information about a future-scheduled television program or about a series of programs to be telecast over a period of time. In that case,
 20 pressing a record button will instruct the EPG to record the future-scheduled program. Alternatively, the viewer can designate the program for the Watch List.

In one embodiment, the viewer navigates from the Grid Guide to the PIP Window by pressing the left arrow key until the
 25 cursor/highlighting reaches the PIP Window. From the PIP Window, the viewer uses the right arrow key to move back to the Grid Guide. In one embodiment, moving from the PIP Window to the Grid Guide causes the cursor to scroll to the very top of the Grid Guide lineup. From the top of the Grid Guide lineup, pressing
 30 the up arrow key moves the cursor to the navigation bar. The EPG provides several possible destinations on the navigation bar, e.g., info center, sports, news, set up, help, etc.

From the PIP Window, pressing the down arrow key moves the cursor to the Ad Window.

The viewer can set a default, or allow the system default, to highlight a particular navigation bar destination when the viewer initially enters the Grid Guide.

In another embodiment of this invention, the position and size of the windows and other user interface features are customizable by the viewer. This feature is similar to the PC user's ability under a Microsoft Windows operating system to control the size and position of various functional windows. The difference here is that, in contrast to, e.g., a Windows 95 operating system which allows the PC user to control the size and position of various functional windows on the face of a static PC monitor background, the present invention allows the television viewer to manipulate the PIP Window carrying a video signal of a first television channel tuned by a first television tuner and the various EPG Windows and EPG features on the face of the television monitor, while the television monitor continues to receive a second video signal of a second television channel tuned by a second television tuner.

3. Translucency on-screen effects.

In one embodiment, the EPG creates special translucency visual effects. To create the translucency effect, the system alternates the display format pixel by pixel--one pixel is the color of the overlay and the next pixel is transparent.

4. On-screen notifications.

The EPG formats on-screen notifications to the viewer and displays the notification to the viewer. On-screen notifications can be used to alert the viewer to any number of possible items of information. For instance, the EPG can notify the viewer that the EPG will begin recording a particular program within a certain amount of time, e.g., 2 minutes. The record notification could further ask the viewer whether to switch the cable box to

record the program. If the viewer indicated that the viewer did not want the EPG to switch to the cable box to record the program, then the EPG would delete the program from the record list. Another example would be to notify the viewer that a program that may be of interest (e.g., as determined from analyzing the Viewer's Profile) will be broadcast on another channel within a certain amount of time, e.g., 2 minutes. The EPG could then ask if the viewer wants to view the program on the other channel. If the viewer indicates that the viewer wants to watch the program on the other channel, then the EPG will automatically tune to the other channel at the appropriate time. Alternatively, the EPG could ask the viewer if the viewer wants to record the program on the other channel and could then record that program at the appropriate time if the viewer answers affirmatively.

If the television is in television mode, the notification will be displayed on-screen. The notification can be displayed in a number of ways, including: 1.) a complete screen overlay; 2.) a partial screen overlay; 3.) The real time program video is automatically changed to a PIP format, and the notification is displayed outside of the PIP window; 4.) The real time program video is automatically changed to a PIP format, and the notification is displayed inside of the PIP window; 5.) as a "watermark" somewhere on-screen; 6.) an on-screen icon is displayed which can be "pressed" by the viewer using the navigation keys on the viewer's remote control device, and which, if pressed, displays the notification in one of the above formats; 7.) the program video is compressed slightly to fit in some percentage, e.g., 90%, of the top of the screen, and the notification is displayed as a horizontally-rolling message at the bottom of the screen; 8.) the program video is compressed slightly to fit in some percentage, e.g., 90%, of the bottom of

the screen, and the notification is displayed as a horizontally-rolling message at the top of the screen.

5 If the television is in some mode other than the television mode, the EPG can notify the viewer through some modification of one of the above-described formats. For instance, if the television is in the Grid Guide mode in a PIP format, then the EPG could use any of format numbers 1.), 2.), 5.), 6.), 7.), 8.)
 10 or, the EPG could notify the viewer by displaying the notification in the Ad Window, a virtual ad channel slot, in the detail information window, or in a horizontally-rolling message at the top or bottom of the screen.

15 5. Theme navigation bar.

The theme display is above the top of the Grid Guide. In one embodiment, the Grid Guide display provides for a "page up" on-screen button. In one embodiment, the Grid Guide display also provides for a "menu" button. The viewer can scroll to the top
 20 of the Grid Guide by successively "pressing" the page up on-screen button, or by "pressing" the menu button.

6. Improved Scrolling through the EPG and Smooth Scrolling.

25 In the top level screen of the EPG in Grid Guide mode, the viewer user can jump directly to a future day of programming schedule information.

In one embodiment, the Grid Guide display provides for a "page up" on-screen button.

30 Program schedule information for a plurality of channels is displayed on a screen of the EPG in Grid Guide mode. Titles are shortened for display in the Grid Guide to conserve space. The entire title is available to the system and is displayed in the detailed description area of the Grid Guide when the viewer
 35 highlights a tile in the Grid Guide for the corresponding program

listing. But the EPG shortens the titles, according to a set of
rules for shortening the titles, so that the titles fit in the
5 scheduling tiles of the Grid Guide.

The viewer can scroll up or down through the program
listings. While scrolling, the titles are not drawn until the
scrolling stops. Such a delay in drawing titles speeds up the
processing and makes the screen appearance less confusing. While
10 scrolling, the cursor will not highlight the top or the bottom
tile on the screen unless the channel is the top or bottom of the
lineup. The absence of highlighting signals to the viewer that
more channels remain in the scrolled direction.

A further improvement to the EPG User Interface ("UI") is
15 the development of "Smooth Scrolling." When the cursor reaches
the second tile from the bottom, and a new tile appears on the
bottom, the entire tile and its contents, e.g., a program title,
grow gradually in height until the newly appearing tile reaches
full tile height. At the same time, the tile that is
20 disappearing from the top of the screen, and the contents of that
top tile, shrink in height until the tile is gone. This provides
a smooth transition in the overall screen display but is not
actually perceptible because it is changing at 1/60 of a sec.

Smooth Scrolling is less disorienting to the viewer than a
25 page by page screen change, which is the scrolling technique used
in existing on screen guides. The entire bit map does not need
to be redrawn as you scroll up one tile--only the top tile is
shrunk or compressed in the vertical dimension.

In one embodiment, while slowly scrolling, the new title
30 appearing on the screen is not redrawn until the scrolling stops.
While rapidly scrolling multiple tiles, the processor stops
redrawing the title on any of the tiles during the scroll; the
processor waits until the scroll stops or slows down to redraw
the titles. This permits faster scrolling because the titles do
35 not have to be retrieved until the screen reaches the desired

point. Redrawing the data is very processor intensive. A special interaction between the firmware and the hardware is required to minimize redrawing the bit map and retrieving data from memory. This applies to both vertical and horizontal scrolling. The user can remain oriented because the channel identifiers and schedule times remain displayed.

10 7. "Jumping" in the EPG.

The viewer can "jump" to the desired action or location in the EPG in a number of ways. In the Grid Guide, the viewer can jump to the channel slot for a particular channel by entering the digits of the channel identification number on the key pad of the viewer's remote control device. The EPG interprets the number and calculates the proper position for the EPG cursor. The EPG then displays the cursor at the appropriate channel slot on-screen.

In one embodiment, the viewer's favorite and/or most watched channels are displayed as buttons on a favorite channel selection bar somewhere on the EPG display of the Grid Guide. The viewer can jump to one of the viewer's favorite channels by "pressing" the appropriate channel button.

In another embodiment, the viewer's remote control device displays letters associated with the numbers on the key pad. The viewer can use a special "Alt" key to allow the viewer to press the keys as if alphabetic and/or alphanumeric. In this way, the viewer can enter a channel identifier, such as "CNN".

In yet another embodiment, the viewer can request a pull down menu of favorite channel identifiers and can select a channel from the pull down menu.

In yet another embodiment, the viewer can set "bookmarks" in the EPG by using a "bookmark" key on the viewer's remote control device, or alternatively, a "bookmark" button on the EPG display. The viewer can press the "bookmark" key when the user

wants to mark a current location for later return. The viewer can then scroll, jump, or otherwise navigate away to some other location in the EPG. When the viewer wants to return to the book marked location, the viewer can press the "lastmark" key (on either the viewer's remote control device, or alternatively on the EPG display). The EPG can record a plurality of book marked locations. In one embodiment, the EPG can remember book marked locations after the viewer turns off the television and then turns on the television multiple times.

8. Thematic color-coding of program schedule.

The EPG categorizes programs according to a plurality of themes. In one embodiment, the EPG color codes the presentation of the program in the Grid Guide according to the theme categorization assigned to the program.

9. Controllable number of days of programming.

Typically, the EPG will carry only 2 days of program listings. At the viewer's selection, the EPG can carry only a single day of program listings. The single day option provides a smaller range of program listings but increases response time. Alternatively, the viewer can select to carry any number of days of program listings, up to the number of days that is provided for by the particular installation, which is set by the corresponding amount of memory storage available.

D. Parental Control Of The EPG Display

The Parent viewer initially enters the Parental Control Function during initial EPG setup procedures. In the EPG setup procedure, the Parent identifies all viewers of the television, and assigns individual viewer Identifiers. The Parent viewer also establishes a password for said Parent viewer. U.S. Provisional Patent Application Serial No. 60/085.401 ("V-CHIP

Plus+: In-Guide User Interface Apparatus and Method for Programmable Blocking of Television and other viewable programming such as for Parental Control of a Television Receiver") describes Parental Control setup procedures for the identification of individual viewers and initialization of password protection, the disclosure of which is incorporated by reference here as if fully stated herein.

10 In the Parental Control Function, the Parent selects the channels and programs that can be visible in the Grid Guide for a particular viewer and selects channels and/or programs that are to be blocked from viewing. Child viewers, as identified during setup procedure, will view a simplified Grid Guide and will be blocked from viewing the programs so marked by the Parent. In one embodiment, individual viewers are identified by viewer ID and password. In another embodiment, individual viewers have different remote control devices, the use of which is also password protected.

20 **E. Improved Television Program Information Access By The Viewer**

25 **1. Virtual Channel Ad Slots and Ad Window program advertisements.**

30 As described below, the EPG provides the viewer with multiple opportunities to obtain detailed information about television programs. As is further described below, the EPG provides the viewer the opportunity to select Virtual Channel Ad Slots or Ad Window displays that advertise future-scheduled television programs and get additional information in the way of text or video clips.

2. Additional detailed information for viewer access including link to the Internet.

5 The EPG displays detailed information relevant to program listings in the detailed information area of the Grid Guide. The detailed information can include, among other things, a detailed textual description of the program, information about the actors and actresses, information about the production of the program, 10 product related information, identification of relevant Internet web sites and online Internet chat rooms. The EPG provides the viewer with the ability to request detailed information from such guides/data services in a number of ways, including when the viewer highlights: a particular program in the Grid Guide, the 15 Ad Window, or a Virtual Channel Ad Slot. In one embodiment, the viewer's remote control device has a power "Information" key. When the viewer has navigated the on screen highlighting/cursor to a particular tile or window on the EPG on screen display, the viewer can press the remote control device "Information" key to 20 request the additional information

In one embodiment, when the viewer highlights a particular program in the Grid Guide, the Ad Window, or a Virtual Channel Ad Slot, or other requests access to detailed program-related information, the EPG connects the viewer with an external 25 database of information, such as with a particular web site on the Internet. The viewer can instruct the EPG to connect the user with detailed specialized information guides/data services, such as sports, news, or other guides/data services. In one embodiment, the linking to the external data source is 30 accomplished by storing a web site address with the Ad Window or Virtual Channel Ad Slot advertisement in the RAM of the user terminal.

A sports program listed in the Grid Guide provides an illuminating example of how the viewer interacts with such a 35 detailed specialized information guide/data service. When the

viewer highlights a football game listed in the Grid Guide, the normal detail concerning the program is displayed in the detailed information are of the Grid Guide. Furthermore, multiple icons related to the highlighted program can be displayed in the Grid Guide. One icon alerts the user that the game is already underway. Another icon indicates the availability of specialized guide information. The viewer can select the program from the Grid Guide for viewing and/or recording. In addition, the viewer can select the specialized guide icon. In the case of a sports program, selecting the specialized guide icon would display, for instance, a scoreboard for the game if the game were already in progress in the detailed information area of the Grid Guide. If the game were scheduled for a future time, then selecting the specialized guide icon would display, for instance, information about the players, the teams, and perhaps, the odds about the game.

Another icon, displayed for instance in the display of the sports guide scoreboard, provides the viewer with the option of connecting to the Internet, e.g., to a particular web site that provides additional information about the game, possibly, including online chat about the game. In one embodiment, the EPG switches to full screen to display of the Internet web site. In another embodiment, the EPG displays the Internet web site in the area of the screen previously occupied by the Grid Guide and/or the Grid Guide and the Ad Window, while continuing to display the real time video display of the currently tuned television program in the PIP window. Alternatively, the EPG can display the Internet web site in the PIP window and display the currently tuned television program in the area of the screen previously occupied by the Grid Guide and/or the Grid Guide and the Ad Window. The Internet web site to which the EPG initially connects (the "contact web site") may be a specialized directory, using pre-determined hyperlinks to the viewer to other cites of

interest. The contact web site may additionally, or in the alternative, offer search capabilities to the viewer to locate
5 information of interest.

Once the viewer is connected with a specialized information guide/data service, the viewer can use the guide/data service to direct the viewer to particular information contained in the EPG Grid Guide. For instance, a viewer selects a news program to
10 watch. While watching the news program, the news broadcaster describes an event involving astronauts. The viewer selects the news guide/data service icon and connects to a web site on the Internet describing, among other things, additional information about the particular event involving the astronauts. The viewer
15 uses the search engine offered by the contact web site to locate additional information about the same astronauts. At the subsequent web sites, a Discovery Channel program is mentioned concerning some of the same astronauts. The viewer instructs the EPG to locate any occurrence of the referenced program and to
20 schedule that program to be recorded. In one embodiment, a PLUS CODE-like address is used to link to, or record, the scheduled program.

The viewer can search an index, available on the Internet and created by a news data service, of recorded television news programs and reports. The viewer can search the index. If the
25 viewer selects one of the indexed reports, a video clip of the indexed report will be shown in the area on the screen occupied by the Internet web site display, or any alternate area or portion of the on-screen display. The viewer can instruct the
30 EPG to record the video clip.

The EPG is capable of integrating additional information provided by the special data services into the EPG display. For instance, in the case of a sports data service, the EPG can format the program listing display and/or the sports scores for
35 a game with special color coding depending upon the stage of the

game. For instance, if the game is in progress, the EPG will
format the program listing and/or the sports scores for that game
5 with one color, e.g., green; if the game is completed, the
program listing and/or the final scores can be in a different
color, e.g., blue. If the game is in progress, the viewer can
highlight and select the box score to move from the box score to
the game shown on the television. In one embodiment, the
10 selected television sports program appears in the PIP Window or
the Ad Window, allowing the viewer to read the sports program-
related story in the sports guide while watching the
corresponding television sports program.

The EPG is further capable of linking between news items in
15 a special news guide and related television programs. The viewer
can link to a news program to watch or record that program by
highlighting and selecting a news item in a news guide. In one
embodiment, the selected television news program appears in the
PIP Window or the Ad Window, allowing the viewer to read the
20 story in the news guide while watching a tv news program that
reports on the event.

In one embodiment, the VBI for selected channels are
dedicated to the delivery of a special data service. For
instance, the ESPN VBI would carry the sports data service only.
25 In one embodiment, as an incentive to carry this data, the data
service would display the ESPN TV program in the PIP window.
Since the tuner must be set to ESPN to capture the data, the
television signal is available for display in the PIP.

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F. Improved Opportunities For The Commercial Advertiser To Reach the Viewer

1. Ad Window product-related video clips and infomercial recording

The EPG provides producers of infomercials with extended capabilities to reach the viewers through the Ad Window. Because of the cost of buying advertising time, a growing number of product manufacturers and marketers produce infomercials about their products and then buy relatively inexpensive air time for their infomercials according to off-prime-time schedules, often on non-prime channels. The EPG provides the producers of infomercials with the opportunity to provide the viewer with the opportunity to record an infomercial that is broadcast at a time, or on a channel, that would be inconvenient for the viewer to watch real-time.

If the Ad Window displays information about a particular product, pressing a record button will instruct the EPG to record an infomercial or advertisement, to the extent that one is scheduled for a future time. Alternatively, the viewer can designate the infomercial or advertisement for the Watch List. Alternatively, the EPG provides the producers of infomercials with the opportunity to provide the viewer with the opportunity to view a video clip about the product being advertised.

In one embodiment, the video clip associated with the product and/or program displayed in the Ad Window is shown when the viewer highlights the Ad Window. Depending upon the embodiment and/or viewer option selections, the video clip is shown in the PIP window, in the Ad Window, or full screen. At the conclusion of the video clip, the EPG typically returns to the mode in which the viewer was operating immediately before

selecting the option that triggered the display of the video clip.

5

2. Ad Window program-related recording

The EPG provides distributors of television programming with additional opportunities to reach the viewer. The Ad Window can display information about a future-scheduled television program. If the viewer is interested in recording the program, the viewer can take a number of alternative actions. For instance, in one embodiment, the viewer can instruct the EPG to record the future-scheduled program. In one embodiment, the viewer presses record button on the remote control device to instruct the EPG to record the future-scheduled program. Alternatively, the viewer can instruct the EPG to add program to the Watch List. Alternatively, the viewer can instruct the EPG to display a video clip about the program. Yet further, the viewer can instruct the EPG to connect the user with detailed specialized information guides/data services, such as sports, news, or other guides/data services. The EPG provides the viewer with the ability to request detailed information from such guides/data services in a number of ways, including when the viewer highlights: a particular program in the Grid Guide, the Ad Window, or a Virtual Channel Ad Slot. In one embodiment, the EPG displays relevant detailed information in the detailed information area of the Grid Guide. In another embodiment, the EPG connects the viewer with an external database of information, such as with a particular web site on the Internet.

30

3. Panel ads.

In one embodiment, Panel ads occupy a fixed area in the Guide and are generally filled with paid advertisements. Located directly below the PIP in an Ad Window, space is available in the Guide for two Panel ads. Each Panel ad occupies approximately

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1/9th of the total screen area. The usable area of a Panel ad is 132 pixels high x 160 pixels wide, with 2 pixel wide black borders all around and 2 pixels of gray on the left and right sides and between the two ad spaces. When a given ad space is not sold, the space will be filled with a Placeholder ad, stored in ROM, and inserted in the available space, or with a bonus ad.

An advertiser may purchase both 1/9th screen areas, thus creating a single ad with a usable space of 270 pixels high by 160 pixels wide, with 2 pixel wide black borders all around and 2 pixels wide of gray on the left and right sides.

In one embodiment, all Guide screens are made up of "hard pages." A hard page is defined as an area comprising 9 channel slots. Each time a user scrolls below the 9*x channel slot, a new "hard page" appears. Scrolling back up will bring the previous hard page back into view. Each hard page may have different Panel ads associated with it.

In one embodiment, Hard pages are defined differently in the Sort screens. Each sort category (e.g. Movies, Sports, Children's) will be considered one hard page regardless of the number of items in the list vertically. As the user moves horizontally from one category to the next, the Panel ads will change.

The number of hard pages available depends on the size of the user's lineup and the number of channels turned on or off. In the event that there are not enough channels to support the number of hard pages required for the number of Panel ads sold, not all Panel ads will be displayed. For example, assume that 4 pairs of Panel ads and 4 Channel ads are saved in memory. Additionally, assume a particular user has 20 active channels in his channel lineup. Then the ads would be displayed as follows:

Panel ad Pair 1 with channels 1-8 and the first Channel ad

1 39674/JEC/I148

Panel ad Pair 2 with channels 9-16 and the second
Channel ad

5 Panel ad Pair 3 with channels 17-20 and the third and
fourth Channel ads

If the user turned on more channels requiring the addition
of a fourth hard page, then the fourth Panel ad Pair would become
10 visible.

In one embodiment, the user can highlight these ads,
resulting in the automatic display of an expanded information
box. This expanded information box covers the entire right-hand
2/3rds of the grid. The user closes the expanded information box
15 by moving the highlight off the Panel ad or by pressing the
information button after the last related information box screen
has been presented. FIGS. 10a and 10b are graphic
representations of sample on screen EPG displays depicting one
embodiment of the feature of presenting additional information
20 concerning the subject matter of a highlighted Panel Ad Window.

In one embodiment, Panel ads are surrounded by flat black
borders. When a panel ad is highlighted, the border turns
yellow. When a program is set to record the border turns red
(dark red when the Panel ad is not highlighted, light/bright red
25 when highlighted). When a program is scheduled to watch, the
border turns orange (dark orange when the Panel ad is not
highlighted, light/bright orange when highlighted).

In one embodiment, there can be multiple information
"screens" displayed sequentially in the expanded information box.
30 Pressing the Info. button while an ad is highlighted accesses
these additional screens. There is no finite limit to the number
of additional screens; memory limitations and selling
requirements will limit this number.

In one embodiment, if a Panel ad is highlighted, has show
35 information associated with it, and the advertised show is

currently on, the user may tune directly to the related program by pressing the Left Action button (the Blue button which is labeled "Watch") or by pressing the Enter/Select button on the remote. Pressing the Watch button also places the show in the Record/Watch Schedule for the duration of the show to allow the user to set the frequency to daily or weekly. If the show is not currently on, pressing the Left Action button places the show in the Record/Watch Schedule or; pressing the Enter/Select button tunes to the channel related to the show in the ad. Shows added to the Record/Watch Schedule may be set to be viewed: once, daily, or weekly. The Watch feature and related Action button labels operate in the same way as if scheduling a show to watch from the Grid.

In one embodiment, if a Panel ad has show information associated with it, the show may be recorded by highlighting the ad and pressing the Right Action button (the Green button, labeled "Record"). If the show is on now, recording begins immediately and the show is placed in the Record/Watch Schedule for the duration of the show to allow the user to set the frequency to daily or weekly. If the show is on in the future, that show is added to the Record/Watch Schedule for auto-recording. Shows added to the Record/Watch Schedule may be set to be recorded: once, daily, or weekly. The Record feature and related Action button labels operate in the same way as if scheduling a show to record from the Grid.

In one embodiment, Panel ads can be dynamic. There are two areas which may be dynamic: 1.) the Panel ad space; and/or 2.) the Information box.

The Panel ad area may change over time, e.g., every x seconds rotating through a plurality of different graphical or textual ad executions in the Panel ad space. When a Panel ad is highlighted, the ad rotation stops on the currently displayed ad

visual. The dynamic rotation does not restart until the Panel ad is de-highlighted.

5 The information box text associated with the Panel ad may change over time, e.g., every y seconds, rotating through a plurality of different screens of text. The screen rotation stops if the user presses the Info. Button, displaying the first page of info. text. This option is available for advertisers to rotate different headlines in the information box. The user may view subsequent pages by pressing the Info. button again. The screen rotation does not restart until after the Panel ad is de-highlighted.

15 4. Virtual Channel Ad Slots.

The EPG provides producers of infomercials with extended capabilities to reach the viewers through Virtual Channel Ad Slots, also referred to as Channel ads. Virtual Channel Ad Slots appear as rows of the Grid Guide and typically show the titles of the programs that are scheduled for a particular channel. The EPG Grid Guide's Virtual Channel Ad Slots provide advertisement to be displayed as a row in the Grid Guides schedule of programs. The Virtual Channel Ad Slots may be used to provide multiple exposures of a particular program in the guide. The Virtual Channel Ad Slots act like a channel entry in the Grid Guide in that the viewer can record, watch, schedule for watching, and/or get information about the advertised program in the information detail box of the Grid Guide.

25 In FIG. 1 of the drawing, tile 52 shows an example of a Virtual Channel Ad Slot for an ad for a television program--it is a program listing that is out of place channel-wise and time-wise in the Grid Guide 22. That is, it does not appear in the usual channel position or time position in the guide, but the tile is otherwise like the other program listing tiles of grid guide 22 (including height), except that it occupies the entire

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width of the tile irrespective of the duration of the program.

5 A tile for a normal program listing scrolls off the screen as the up and down arrow keys are pressed. In contrast, in one embodiment, a Virtual Channel Ad Slot, such as shown in tile 52, remains on the screen at all times as the up and down arrow keys are pressed, so the ad remains in view at all times.

10 Channel ads do not occupy a fixed area. Channel ads are essentially inserted between channels in the grid. If there are no Channel ads sold, the grid will simply be a continuous list of channels/show tiles with no gaps. As these channel ads take up a channel slot in the grid, it is desirable to limit how many are likely to appear on any one screen to ensure the Guide is a useful source of TV programming information. Typically, there will be approximately 1 Channel ad per hard page.

15 Channel ads are typically the height of a channel slot, the width of the grid and are intermingled with the channel listings. The usable area for a Channel ad is typically 24 pixels high x 344 pixels wide, with 2 pixel wide bevels all around.

20 There are several types of Channel ads, including: Relative, Parent, and Fixed position Channel ads.

25 Relative Channel Ads appear in a position relative to the top of the grid and are spaced every n channel slots, where n is some number. These ads appear and disappear as the user pages through the Guide's hard pages. It is anticipated that n will usually (but not necessarily always) equal 9 since this is the number of channels in the PIP version grid. This would provide for one ad per hard page. A location for the first ad can be selected on the first page and subsequent ads follow every n channel slots. The same ad is repeated every n^{th} slot. This method of repeating every n^{th} channel slot is true for both PIP and non-PIP versions. Typically, as a user turns channels off, the spacing of these ads remains constant (every n channel slots). In the event that there are not enough channels to

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continue this spacing, ads will appear at the end of the grid listings.

5 Parent Channel ads are related to a specific channel located directly above the ad. A Parent Channel ad is attached to its adjacent "parent" channel (that is, the ad follows the parent channel). As it is desirable to limit the number of Channel ads seen on any one screen, the number of Parent ads will typically
10 be limited. Additionally, if the parent channel is turned off, the ad will typically be displayed at the bottom of the grid.

Fixed Position Channel ads are located in one specific location, y (where y is some number) channels down from the top of the grid. If y is greater than the number of channels in the
15 grid, the ad will be located at the end of the grid.

Except as noted above regarding Parent and Fixed Position Channel ads, Channel ads will typically be spaced so that no more than one Channel ad is displayed at one time.

In one embodiment, Channel ads page vertically along with the channel listing information. These ads remain in a fixed position when the grid is scrolled horizontally. The user can highlight these Channel ads just as any show title can be highlighted. When highlighted, these Channel ads display additional information in the info. box just as when any channel
20 is highlighted.

Channel ads are typically surrounded by bevels just like any show tile. Channel ad highlighting is typically similar to Panel ad highlighting. In one embodiment, when a user highlights a Channel ad, the bevels change to a flat (non-beveled) yellow
30 border. When a Channel ad show is set to record the border turns red (dark red when not highlighted, light/bright red when highlighted). When a Channel ad show is scheduled to watch, the border turns orange (dark orange when not highlighted, light/bright orange when highlighted).

In one embodiment, Channel ads can have multiple, sequential info. box "screens" of information. The availability of this additional information is indicated by an "i" icon. The user can access the additional information by pressing the info. button.

In one embodiment, if a Channel ad is highlighted, has show information associated with it, and the advertised show is currently on, the user may tune directly to the related program by pressing the Left Action button (the Blue button which is labeled "Watch") or by pressing the Enter/Select button on the remote. Pressing the Watch button also places the show in the Record/Watch Schedule for the duration of the show. If the show is not currently on, pressing the Left Action button places the show in the Record/Watch Schedule for future auto-viewing; pressing the Enter/Select button tunes to the channel related to the show in the Channel ad. Shows added to the Record/Watch Schedule may be set to be viewed: once, daily, or weekly. The Watch feature and related Action button labels operate in the same way as if scheduling a show to watch from the Grid.

In one embodiment, if a Channel ad has show information associated with it, the show may be recorded by highlighting the ad and pressing the Right Action button (the Green button, labeled Record). If the show is already being delivered in the television signal, recording begins immediately and the show is placed in the Record/Watch Schedule for the duration of the show. If the show is on in the future, the show is added to the Record/Watch Schedule for recording. Shows added to the Record/Watch Schedule may be set to be recorded: once, daily, or weekly. The Record feature and related Action button labels operate in the same way as if recording a show from the Grid.

Channel ads can be dynamic.

5. Placeholder Ads

5 In one embodiment, when the Guide is first setup, the initial download of information will not have been received. The Panel ad spaces must be filled with Placeholder ads that are stored in ROM. These ads must be "timeless" as they will appear each time a TV is set up, either for the first time or after a power outage.

One use for the Panel ad space is for help text. Help text that draws the user to select the ad space could serve as a "tutorial" on how to access Panel ads, the additional information on info. screens, and how to Watch and Record from ads.

6. Full screen ads.

When the viewer first enters the EPG, the EPG can display a full screen ad, such as an ad that would be displayed in the Ad Window. The viewer can interact with the full screen ad in the same manner in which the viewer can interact with the Ad Window. That is, the viewer can instruct the EPG to record, or to add to the watch list, the infomercial or program, if there is one, that is associated with the advertisement.

7. Automatic watch channel.

Rather than have the last channel watched as the first channel tuned the next time that the viewer turns on the television, a channel selected by the viewer could be automatically tuned. In one embodiment, the viewer indicates the Automatic watch channel in the Watch List Function of the EPG. In another embodiment, a broadcaster sends an on-screen query to each viewer to enter a command if the viewer wants the broadcaster's channel to be the first watched channel when the viewer first turns on the television.

8. Ad Features.

5 Ads may feature, among other things, a graphics field, a text field or a combination of a graphics and text field.

Graphics are typically presented in 8 bit/pixel (using "320 mode"), 4 bit/pixel (in "640 mode") and 1 bit/pixel images. In some embodiments, there will be memory limitations. In embodiments with such memory limitations, it is expected that
10 Panel ads will contain graphics no larger than 25% of the ad area when 4 or 8 bit/pixel graphics are used. 100% of the area may be used for a 1 bit/pixel graphic. Channel ad graphics will typically, but not necessarily, be limited to the channel logo portion of the ad. (The use of the word "typically" here, and
15 elsewhere in this application, means "typically, but not necessarily.") The remaining portion of the Channel ad will typically be text only.

Displayed text will typically have the following characteristics:

20 available normal and condensed 18 and 24 point fonts
oblique version of the fonts
underlining
bold
centering
25 left and right justification
color can be selected once per line

Text could also be displayed as a 1 bit/pixel bitmap in the Panel ad areas only.

Background colors will have an impact on the overall look
30 and usability of the Guide. The following describes a typical embodiment.

Panel ad background colors may be selected by the advertiser and will typically be subject to luminance constraints set forth below.

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Channel ad background colors may be restricted. Show tile background colors are used as keys for show categories (movies, sports, etc.) and actions taken on a show (set to record or watch). While most any background color could be displayed it is desirable to maintain the integrity of the show tile color schemes. Therefore, it is likely that a limited set of background colors or a set of colors which can not be used will be specified for advertising agencies to use when developing Channel ad creative. Channel ad backgrounds will typically be subject to luminance constraints set forth below.

The Info. box background will typically be gray and typically can not be changed by the advertiser.

There are typically limitations on the luminance of the colors in the ads. If the luminance is set too high, the screen image will blister. These limitations will be set, according to the embodiment, and communicated to the advertisers for their development consideration. Ads that do not comply with luminance restrictions for the particular embodiment will be subject to default override limitations.

In one embodiment, the viewer can interact with the ads and the television. For instance, Tune-in ads will allow the viewer to tune directly to a show in progress from a highlighted ad block assuming the ad block has program information associated with it. An in progress show associated with an ad is directly tuned by pressing either the Enter/Select button or the Left Action button (the Blue button labeled "Watch").

Direct-record ads will allow the user to record a show in progress or scheduled to be on in the future from a highlighted ad block. There is no practical limit on how far into the future a direct-record associated show may be scheduled to air. A show associated with an ad is recorded by pressing the Right Action button while the ad is highlighted. The user may select a record frequency of once, daily or weekly. From an ad, the user presses

the Right Action button (the Green button labeled "Record") to place the show in the Record Schedule. In the event that the show is currently on, pressing the Right Action button while highlighting an ad allows recording of the show in progress. The show title is also placed in the Record Schedule until the show ends in the event the user wishes to modify the record frequency to daily or weekly.

10 Watch ads consist of a program advertised in any ad space. The program advertised may be placed into the Watch Schedule as long as the ad block has program information associated with it. There is no practical limit on how far into the future an associated show may be scheduled to air. The Watch feature operates much the same way as the Record feature, except that it tunes the television ("TV") to the show rather than recording it. If a user is watching TV, the channel automatically changes to a show placed in the Watch Schedule when the show begins. If the TV is turned off when a show in the Watch Schedule is scheduled to begin, the TV is turned on and tuned to the desired channel (TV implementations only, not VCR.) The user may select a watch frequency of once, daily or weekly. From an ad, the user presses the Left Action button (the Blue button labeled "Watch") to place the show in the Watch Schedule. In the event that the show is currently on, pressing the Left Action button while highlighting an ad results in tuning directly to the show. The show title is also placed in the Watch Schedule until the show ends in the event the user wishes to modify the watch frequency to daily or weekly.

30 Ads may have multiple levels of information. Typically, First Level Information is the ad copy and/or graphics that are presented on screen with no user action. This comprises the Panel and Channel ad areas.

Typically, Second Level Information (if provided by the advertiser) is automatically made visible ("Auto-Open") when the

user highlights an ad block by scrolling onto it. This secondary information is presented in the info. box when a Channel ad is selected and in an automatically expanded version of the info. box that covers the entire channel grid area when a Panel ad is highlighted. The "i" icon on the ad, placed at the advertiser's discretion, indicates there is more information available for that ad. The second level information may be text and/or graphics depending on memory availability.

Typically, Third Level Information (if provided by the advertiser) availability is indicated by the info. button "i" on a Second Level information screen. Pressing the info. button accesses this information and cause the information box to expand for Channel ads to cover the entire grid area. This information can be multiple pages long. Pressing the info. button successive times cycles the user through the multiple pages. Pressing the info. button from the last available screen causes the information box to contract to its original size for all ads. The third level information may be text and/or graphics depending upon memory capabilities.

Ad Blocks can be dynamic. Memory permitting, the Panel ad graphics and/or text and information box text may change every X (where X is some number) seconds rotating through a limit of N (where N is some number) different graphical or textual executions. There is the capability to limit the number of dynamic ads displayed at any one time.

Ad duration and start time/end time can be scheduled and/or dynamic. In one embodiment, ads are to be displayed at a given start time with a related end time. The time between the start and end is the ad's duration. The minimum duration increment is typically 60 seconds. In one embodiment, an ad will not be replaced automatically when an ad's end time arrives. Ads will only change when the user's actions cause a new "hard page," or

new section of the guide to appear (e.g. going from the Grid to Sort).

5 Ads can rotate. For example, different ads can appear each time the user enters the same page/section of the Guide. There is no hard limit on the number of ads placed in rotation. Ads can be assigned a priority with the ad of the highest priority being displayed the first time a hard page or section is
10 accessed. Then the second priority ad is displayed the next time the user views this page and so forth. The priority counter is page dependent, meaning that if the user views the first page for a third time, they will see the third priority ad on that page and if they then scroll to the second page for the first time,
15 they will see the first priority ad on the second page.

Ads may differ by the section of the Guide being viewed. For example, if a user is viewing the Sports theme area, an ad for ESPN Sports Center may appear, whereas a different ad was presented when the user was on the main grid.

20 The EPG can determine which advertisements to display depending upon the advertisement being displayed on the television channel that the viewer was watching immediately before entering the EPG. That is, if a Toyota advertisement was being shown on the channel that the viewer was watching at the
25 time that the viewer entered the EPG, then the EPG can be timed to display a correlative Toyota advertisement in some portion of the EPG, e.g., the Ad Window. a television program.

In one embodiment, the EPG tests the Viewer Profile to determine which ad to display at various times during the
30 viewer's session with the EPG. The EPG can assign Ad and Page priorities to represent the advertisers' investment and the relative viewer's profile.

Graphically dynamic ads typically present different graphics every x seconds (where x is some number, with x as small as 1.0
35 second) rotating through n (where n is some number) graphical or

textual executions. Typically, only a limited number of these ads will be displayed at any one time (likely a maximum of 1 per screen) as busy screens will decrease the effectiveness of the ads and the utility of the Guide.

Ads must be "identifiable" and "accessible" once placed in memory in order to allow advertisers to "pull" an ad, to update an ad, or to correct errors in transmission.

10 **G. Improved Product Information Access By The Viewer**

1. **Ad Window product detail.**

The viewer can highlight the Ad Window to locate additional information about the product advertised. In one embodiment, the viewer highlights the Ad Window by pressing the arrow/directional navigational keys of the remote control device to navigate the remote control device pointer to the location of the Ad Window on the on-screen television monitor display. When the remote control device pointer is located at the Ad Window on the on-screen television monitor display, the on-screen display of the Ad Window will be highlighted. In one embodiment, the color of the Ad Window itself will become brighter or show a lighted effect. In another embodiment, the color of a border surrounding the Ad Window will become brighter or show a lighted effect. Highlighting the Ad Window will cause additional text describing the product to be displayed in the detail box are of the EPG Grid Guide. Alternatively, the EPG provides the producers of infomercials with the opportunity to provide the viewer with the opportunity to view a video clip about the product being advertised.

The Ad Window can be optionally interactive. The Internet address of a web site containing information relevant to the ad being displayed in the Ad Window can be displayed in the Ad Window as a web site address, as an icon, or in some other

graphical presentation, such as a stylized "i" indicating additional interactive information. Furthermore, the viewer's interaction with the Ad Window will be monitored by the EPG to record as part of the viewer's profile.

2. Ad Window product-related recording

The EPG provides viewers the opportunity to access extended product information about which the viewer is interested. Because of the cost of buying advertising time, a growing number of product manufacturers and marketers produce infomercials about their products. Because of the cost of air-time, many manufacturers and marketers buy relatively inexpensive air time for their infomercials according to off-prime-time schedules, often on non-prime channels. The EPG provides the viewer the opportunity to record an infomercial that is broadcast at a time, or on a channel, that would be inconvenient for the viewer to watch real-time. If the Ad Window displays information about a particular product, pressing a record button will instruct the EPG to record an infomercial, to the extent that one is scheduled for a future time. Alternatively, the viewer can designate the infomercial for the Watch List.

3. Ad Window program-related recording

The EPG provides viewers with additional opportunities to instruct the EPG to record or watch a future-scheduled television program. The Ad Window can display information about a future-scheduled television program. If the viewer is interested in recording the program, the viewer can instruct the EPG to record the future-scheduled program. In one embodiment, the viewer presses record button on the remote control device to instruct the EPG to record the future-scheduled program. Alternatively, the viewer can instruct the EPG to add program to the Watch List.

Alternatively, the viewer can view a video clip about the program.

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H. Creation of a viewer's profile

1. Collecting viewer profile information.

10 The EPG requests that the viewer provide certain profile information, including but not limited to: the viewer's zip code; television, cable, and satellite services to which the viewer subscribes; the length of said subscriptions; the type of television; the age of the television; where the television was purchased; the viewer's top favorite channels; the viewer's favorite types of programs; and the times during which the viewer is most likely to watch television. If the viewer declines to provide this information, the EPG will attempt to "learn" the information as described below.

15 In one embodiment, the EPG is capable of distinguishing between individual viewers and develops individualized profiles. For instance, in one embodiment, each viewer has an individual PIN or other identification number. In another embodiment, each viewer uses an individualized remote. In yet another embodiment, there is an absence of a way to distinguish one viewer from another. In that case, the profile is developed for the "family."

20 Every time the viewer interacts with the EPG or the television, the EPG records the viewer's actions and the circumstances surrounding those actions. For instance, when the viewer changes channels, the EPG records, among other things, information about the first channel, the changed-to channel, the time that the change was made, the identification of the programming that was displayed on the first channel, the identification of the programming that was displayed on the changed-to channel, the time of the change, the identification

of any advertisement that was displayed on the first channel at the time of the change, the identification of any advertisement that was displayed on the changed-to channel, and whether the viewer changed channels while in one of the EPG modes, as opposed to being in the television mode. The EPG will also record every instruction by the viewer to record or watch a program, whether the instruction is Once, Daily, Weekly, or Regularly. The EPG will also record whether the viewer changes the volume of the television audio, and if so, what circumstances surrounded the change in volume. If the viewer changes channels while in one of the EPG modes, then the EPG records information about what was displayed in each of the windows of the EPG UI before and after the change.

The EPG also records information when there is an absence of interaction between the viewer and the television or the EPG. For instance, the EPG will record whether a viewer continues to view an advertisement rather than changing channels. The EPG calculates and records the entire duration of the time that the television is on in any particular day.

The EPG also records information surrounding the viewer's interaction with external sources of information, such as the Internet. For instance, the EPG records each search query criteria initiated by the viewer, the Search Engine used to make the search, the items selected by the viewer from the search response, interaction by the user with Internet sites, and viewer interactions with the EPG during the same time-frame as the viewer interacts with the Internet.

An alternative to the above-described individual viewer profile information collection would be to provide on-screen survey queries. That is, the EPG could display an offer on-screen that would tell the viewer to call a toll-free number for the purpose of reading an on-screen encrypted number for the survey in exchange for a gift certificate. The offer could be

made only to viewers watching a particular program or particular advertisement at a particular time. Survey responses would provide useful information further survey customization, customizing the guide, and targeting advertising.

2. Analyzing and characterizing viewer profile information.

10 The viewer profile information (data collected concerning, and surrounding, a viewer's interaction with the television, the EPG (including the recording and watching functions), the Internet, the World Wide Web, and any other sources of information external to the EPG, but through which the viewer interact)) can be sent to a computer at the head end of television distribution for analysis, or in the alternative, can be analyzed by the EPG.

Information about the viewer is captured on an ongoing basis. Similarly, viewer profile data is updated on an ongoing basis. Accordingly, the viewer profile analysis program (the "Profile Program"), can be repeated at some time interval to incorporate additional information about the viewer that has been captured since the last analysis. Alternatively, the Profile Program is a real time program that processes each discrete item of information about a viewer as the data is captured.

The viewer profile analysis program (the "Profile Program"), may be resident at the head end, in the Internet, included as part of the EPG, or distributed among these various possible locations. The Profile Program performs a variety of different types of analysis on the viewer profile data. For instance, the Profile Program performs simple statistical analysis of the data collected. The Profile Program accumulates, among other things, the number of times that the viewer: interacted with the EPG during a particular viewing session; performed particular types of interactions with the EPG; watched a particular channel;

interacted with the Internet during a particular viewing session,
interacted with a particular website; watched and/or recorded
5 and/or scheduled to watch a program with a particular type of
theme (e.g., comedy, sports, drama, movie, sitcom, science
fiction, adventure, mystery, documentary, cooking, travel, etc.);
and watched and/or recorded and/or scheduled to watch a program
with a particular type of subject (e.g., golf, tennis, football,
10 basketball, baseball, animals, food, etc.), or a particular actor
or actress. The Profile Program also calculates the duration of
each viewing and compiles, among other things, statistics about
the times of day and days of the week during which the viewer
watches television, interacts with the EPG, or interacts with the
15 Internet or the World Wide Web.

Using the basic viewer profile data and the simple
statistics collected about a particular viewer, the Profile
Program "learns" to recognize a finer breakdown about the various
types of data collected and then uses the learned information to
20 describe a "Viewer Preference.". For instance, if the Profile
Program detects that the viewer watches sports programs, and that
a number of sports programs are basketball games, the Profile
Program analyzes the teams involved in the programs watched. The
Profile Program is able, in this manner, to determine whether the
25 viewer is a fan of a particular team. If so, the Profile Program
records the viewer's team affiliation as a Viewer Preference.

The Profile Program performs multiple levels of
sophisticated analysis and learning involving numerous
comparisons of the basic viewer profile data and the simple
30 statistics collected about a particular viewer to develop Viewer
Characteristics. In this way, the Profile Program develops a
multi-dimensional profile of the viewer. For example, once the
Profile Program detects a Viewer Preference, the Profile Program
compares, e.g., the number of times that the viewer interacts
35 with the EPG or an external information source such as the

Internet/World Wide Web, during a telecast of a program that relates to the Viewer Preference (e.g., a basketball game involving the viewer's favorite team) with, e.g., the number of times that the viewer interacts with the EPG or an external information source such as the Internet/World Wide Web, during a telecast of a program that does not relate to the Viewer Preference.

10 Further, the types of interactions in both sets of circumstances are analyzed. In this way, the Profile Program determines Viewer Characteristics relating to, among other things: attention span; general interest in product advertisements; interest in specific types of product information; propensity for impulse buying; correlation of impulse buying habits to price ranges, product types, and advertising formats; interest in recording and/or watching future-scheduled programs; interest in accessing additional levels of information concerning television programs; and
15 interest in accessing additional levels of information concerning product advertisements including the correlation of such interest with the Viewer Preferences. Over time, with sufficient data, the EPG characterizes the viewer's sense of humor, chronological age, activity age, whether the viewer is married, whether the viewer
20 has children, whether the viewer has a pet and what type of pet the viewer likely has, whether the viewer is interested in buying a particular type of appliance, whether the viewer is considering buying a car, the viewer's likely political affiliations, and a broad range of various other Viewer Characteristics.

30 Yet further, the Profile Program analyzes an individual's Viewer Profile as compared to the Viewer Profiles of others. With this cross-comparison analysis, the Profile Program can determine the likelihood that the subject viewer will prefer or be interested in a particular subject, product, theme, movie,
35 episode, etc. based on comparisons to similar Viewer Profiles.

5 **I. Utilization Of Viewer Profile Information To Customize
Various Aspects Of The EPG**

10 The EPG and Profile Program use the basic viewer profile data, the simple statistics collected about a particular viewer, Viewer Preferences and Viewer Characteristics (collectively, hereinafter, the "Viewer's Profile") to customize various aspects of the EPG. The viewer has the option to block any of these automatic customization features in the EPG Setup Mode. One aspect of the EPG that will be customized is the order of the channel slots presented in the Grid Guide. The order in which the channel slots are presented can be customized to present the viewer's favorite channels at the top/beginning of the Grid Guide in descending order according to the Viewer's Profile.

15 In one embodiment, the order of the channel slots is customized according to the day of the week and the time of day in accordance with the Viewer's Profile. For instance, if a particular viewer frequently watched Nick at Nite on weekday evenings from 7pm to 10pm, then the EPG automatically tunes the television when turned on between 7 pm and 10pm, to the appropriate Nick at Nite channel and formats the Grid Guide to show the Nick at Nite channel as the first channel in the Grid Guide. If the same viewer typically watched ESPN during daytime hours on Saturday and Sunday, then the EPG automatically tunes the television when turned on between, e.g., 7 am through 7 pm on Saturday and Sunday to one of the ESPN channels and formats the Grid Guide to show the ESPN channels as the first several channels in the Grid Guide whenever the viewer enters the Grid Guide between, e.g., 7 am through 7 pm on Saturday and Sunday.

25 At the viewer's option, the EPG and Profile Program use the basic viewer profile data, the simple statistics collected about a particular viewer, Viewer Preferences and Viewer Characteristics to perform automatic surfing. At the viewer's

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option, auto surfing can be performed during real-time advertising telecasts. At the viewer's further option, auto surfing can be performed in PIP Watch Function, allowing the viewer to watch the program currently tuned in the main Picture Window, while providing auto surfing in the PIP Window. Alternatively, at the viewer's option, auto surfing can be performed in PIP Watch Function, allowing the viewer to watch the program currently tuned in the PIP Window, while providing auto surfing in the Main Picture Window. Still further, the viewer can choose the option of selecting a different advertisement to watch, or manually surfing channels of the viewer's choice.

At the viewer's option, the EPG and Profile Program use the basic viewer profile data, the simple statistics collected about a particular viewer, Viewer Preferences and Viewer Characteristics to populate the Record List and/or the Watch List with programs that are likely to suit the viewer's interests. In one embodiment, searches for this type of information are conducted at a central computer at the head end. In another embodiment, queries are constructed and fed to an Internet search engine.

At the viewer's option, the EPG and Profile Program use the basic viewer profile data, the simple statistics collected about a particular viewer, Viewer Preferences and Viewer Characteristics to search for news stories that are likely to suit the viewer's interests. The problem that is solved is automatically (without an editorial staff) choosing news stories from multiple news feeds for display to a particular viewer in a news service. The content of the audio portion of the news broadcast is digitized and can be stored at a central computer, on one or more web sites, on DVD's (both video and audio recordings) local to the particular viewer's television system, or in memory at the particular viewer's television system. In

addition to the audio content, video recordings of the news stories can also be stored.

5 The Viewer's Profile, and in some embodiments, specific input from the viewer, is then used to construct data-mining search queries to locate and deliver content that matches the viewer's profiled interests and/or the viewer's specific requests for information. The news stories are then indexed (as described
10 elsewhere in this disclosure). The EPG presents the viewer with the customized index. In this way, the viewer selects the news stories for viewing in much the same way as the viewer selects television programs that the viewer wants to watch or record. Furthermore, web sites containing additional information
15 concerning the indexed news stories can be posted, e.g., as part of the detailed description area text presented at the time that the viewer highlights a particular news story for viewing.

In one embodiment, Theme Guides provide "Smart Sorting" based on the Viewer's Profile (which is explained more fully
20 elsewhere in this application). That is, if a program is on two channels, the system will select the best channel based on which of the two channels the viewer watches more often. In one embodiment, the Theme Guides are further customized according to the Viewer's Profile. For instance, an information broadcast
25 packet sent with the scores is used to order the score in the sports guide consistent with the Viewer's Profile. For instance, the score for a game involving the Boston Red Sox would display the scores for the Red Sox first for a viewer in Boston.

During set up procedures, the EPG provides for automatic
30 channel map selection. All channel maps in the viewer's zip code are downloaded. Zip code related options are displayed. In one embodiment, the viewer is asked to identify information necessary for the television to select the appropriate channel mapping option, but the television automatically selects the appropriate
35 channel map. For instance, the viewer is asked to identify, e.g,

the distribution service to which the viewer subscribes, e.g., Colonial Cable, and a particular channel map, e.g., does the viewer receive HBO on channel 43. In this way, the viewer identifies the information necessary for the television to select the appropriate channel map. Alternatively, the viewer is actually asked to select the channel map, e.g., "if you have Colonial Cable and get HBO on channel 43, pick this channel map."

J. Utilization Of Viewer Profile Information To Provide Customized Presentation Of Advertising To The Viewer

The EPG and the Profile Program use Viewer Profile information to tailor the presentation and scheduling of advertisements to the viewer and to customize the presentation of the EPG for the user. For instance, the EPG uses Viewer Profile information to determine whether to notify the viewer about scheduling for a program involving the viewer's favorite team, a talk show involving a star player from that team, etc. The EPG is capable of such customized notification/advertisement through e.g., an advertisement in the Ad Window, or through an advertisement in a Virtual Ad Channel Slot.

Additionally, the EPG and the Profile Program use Viewer Profile information to customize the presentation and/or scheduling of telecast advertisements that are viewable during the real time telecast of the television program that the viewer is watching. One example is customizing an overlay message to an advertisement on a local geographic basis. For instance, the EPG knows the geographic location of the individual viewer. The broadcaster can packet match on the zip code to customize the message so each zip code gets a different message, i.e., the 3 Burger Kings in the viewer's local area. In one embodiment, the customized messages can be preloaded by zip code into the memories of particular viewers' EPG's. The preloaded messages can be transmitted by a head end during off hours and stored in

the viewer's terminal for use when the advertisement runs, e.g., during a television program or in a video clip in the Ad Window.

5 The electronic trigger to run the message can be transmitted along with the television signal in real time and can identify the messages stored in the user terminal that need to be applied.

In another embodiment, the customized messages are narrowcast with the televised advertisement. One way to narrowcast the customized messages is to embed the customized information in the advertisement video stream. Another way is to transmit a digital "watermark" in the video stream of the advertisement.

15 In one embodiment, customization of real-time viewing of advertisements is achieved by providing multiple channels of advertising, by tuning the television automatically to a particular advertising channel at the time during the telecast of the television program during which an advertisement is scheduled to occur, and by then tuning the television back to the viewer's chosen television program at the conclusion of the advertisement. In another embodiment, a service monitors telecasts for advertisements as they are telecast on a particular channel and inserts a change channel command in the Vertical Blanking Interval (the "VBI") when an ad is telecast, said change channel command causing the television to tune to a particular channel for a telecast of an advertisement suitable to the Viewer's Preferences.

25 Viewer Profile information can be reported, as with, for instance, statistical reports of Viewer Profile information for many viewers. These reports could be provided for analysis by 30 advertisers, head end operators, Guide producers, or others, to determine, among other things, marketing customization opportunities, narrowcasting opportunities, program detail information requirements, and program distribution scheduling requirements. 35

5 The EPG will attempt to capture the approximate initial purchase date (e.g., first turn-on date) of any television/entertainment system components. The EPG can notify the user at the appropriate time after the initial purchase of opportunities such as purchasing an extended warranty from the manufacturer. In one embodiment, the terminal equipment is separately addressable providing that such notification messages
10 can be sent in the VBI to the appropriate viewer. Based on the Viewer Profile, the extended warranty offer could be tailored to the viewer's financial situation.

15 Another way that the EPG uses Viewer Profile information is in connection with "access-content" customization of the advertising messages displayed by the EPG. Viewer Profile information will include the television program that the viewer was watching immediately before entering the EPG. The EPG can display different ads in the Guide or Service based upon the content of the television program that the viewer was watching
20 before entering the EPG or one of the special data services accessible through the EPG. The "access-content" advertising strategy provides a much more refined way of targeting the consumer. For example, consider two viewers who are both watching television at 8:00 p.m. on a Tuesday night. When the
25 one viewer who has been watching "Nova" enters the EPG, the EPG might display an advertisement for educational computer; whereas when the second viewer who has been watching Major League Baseball enters the EPG, the EPG might display an advertisement for Goodyear Tires.

30 In one embodiment of this invention, a data base of advertising messages and virtual channel ads is stored in RAM at the viewer terminal or is accessible at a web site if the viewer terminal has an Internet connection. In either case, the advertising items in the data base are labeled with coded
35 categories that correspond to coded category labels assigned to

the telecast television programs. (Preferably, these are the same categories that are used to sort the programs in the on screen category or theme guide.) The category labels of the television programs could be stored in RAM as part of the EPG data base and retrieved from the applicable Show Information Package ("SIP") based on the information from the real time clock and the tuner setting. This information identifies a time and channel that points to the applicable SIP. After the category label of the last program the viewer was watching in the television mode is retrieved from the EPG data base, this label is matched to the corresponding label in the data base of advertising messages and virtual channel ads stored in RAM. In FIG. 1 of the drawing, the advertising items to which the labels are attached are displayed in ad windows 14 and 16 and the virtual channel ad displayed on tile 52 as described above.

Yet another way that the EPG uses Viewer Profile information is in connection with "adjacent-content" customization of the advertising messages displayed by the EPG. Viewer Profile information will include identification of the content that the viewer has currently highlighted in the EPG or related data service. Using this method, the EPG displays different advertisements depending upon, e.g., which show the viewer has currently highlighted in the Grid Guide, what sport is highlighted in a sports data service, or what type of news is highlighted in a news service (international, local, etc.).

The EPG can select advertisements from various possible locations, including but limited to: a library of advertisements stored at the viewer's terminal in RAM that have been downloaded through the VBI, stored at the head-end, or accessible through an EPG link to the Internet/World Wide Web. The advertisements may be in the form of graphics, text, video clips, audio clips, and combinations thereof. Each advertisement can be assigned theme codes, profile codes, and other selection intelligence.

In one embodiment, in order to customize the advertising display, the EPG searches the library of available advertisements to
 5 locate advertisements that match criteria set by the advertisers for "access content," "adjacent content," and/or Viewer Profile information. In another embodiment, the EPG selects advertisements for display according to pre-established selection criteria.

10 The disclosures of the following patent applications are incorporated fully herein by reference: International Application WO96/07270; Application No. 60/053,330 filed July 21, 1997; Application No. 60/061,119 filed October 6, 1997; and Application No. 60/055,237 filed August 12, 1997.

15 In one embodiment, the advertisements in the library are assigned to themes; the history of use of an on-screen theme menu or program guide is recorded; and the history is analyzed by the EPG microprocessor to decide which advertisement to display.

20 For example, a particular advertisement for automobiles might be assigned to a sports event theme. In a simple implementation, this automobile advertisement would be selected for display, if the users of the particular EPG selected sports as a theme more frequently than any other theme during a
 25 prescribed period of time. FIG. 7 represents the on screen display for the top level theme screen; and FIG. 8 represents the on screen display for the second-level theme screen. A theme selection could be recorded when a viewer highlights a theme in FIG. 7, such as "Sports". Selecting a theme brings up a screen
 30 listing, by time, channel, and title, of the programs that are consistent with the selected theme on a second-level theme screen, an example of which is shown in FIG. 8. The history of use could be recorded in a memory by overwriting the oldest data stored in the memory. If desired, a more sophisticated analysis
 35 could be used. Thus, the frequency of selection could be

weighted to favor more recent selections over older selections
or themes could be combined to determine which advertisement to
5 display.

In another embodiment, the advertisements in the library are
assigned to particular television programs or classes of
television programs; the history of use of the information box
of the EPG is recorded, in terms of frequency of the visits, time
10 spent during a single visit, and/or total time of all the visits;
the information boxes are correlated to the television programs,
and the results are analyzed to decide which advertisement to
display. Instead of the information box, any other area of the
EPG screen could be monitored in similar fashion to decide which
15 advertisement to display. In each case, the advertisements in
the library are assigned to the types or subjects of information
displayed in the monitored area so as to target better the
advertisements to the interests of the users.

In another embodiment, the advertisements in the library are
20 also assigned to particular television programs or classes of
television programs in terms of channel and time; the tuner is
monitored; the channel and time are correlated to the television
programs, and the results are analyzed to decide which
advertisement to display.

25 For example, an advertisement for brand name athletic shoes
with a popular basketball star could be assigned to basketball
programs. The shoe advertisement would be selected for display
if the viewer of the particular EPG entered the EPG while
watching a basketball game.

30 In another embodiment, the advertisements in the library are
also assigned to particular television programs or classes of
television programs; the history of television programs entered
into a "record-watch list" as shown in FIG.6 is recorded; and the
results are analyzed to decide which advertisement to display.

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5 The time of the monitored event can also be taken into
account in order to distinguish between multiple users of the
same EPG or related television receiver. The assumption is that
the people using the EPG and watching television at different
times of the day have different interests--housewives may use the
EPG more in the morning, children may use it in the early
evenings, and men who work outside the home may use it on Sunday
10 afternoons.

History of use as described above can be combined with the
"access-content" model described in Application No. 60/055,237
to further pin-point advertisements to the user's interests.
Thus, if the users of the particular EPG selected comedies as
15 a theme more frequently than any other theme during a prescribed
period of time, three advertisements might be flagged and the
final selection made therefrom depending upon which type of
program the viewer was watching on television before switching
to the on-screen EPG.

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WHAT IS CLAIMED IS:

5 1. A method for navigating about an on screen television interactive program guide comprising the steps:

displaying a list of television programs vertically in a first area of a screen of a display monitor;

10 displaying an advertisement in a second area of the screen located horizontally adjacent to the first area;

moving an on screen cursor vertically to highlight a first television program listing in the first area;

15 displaying a first television program represented by the first television program listing in a third area of the screen; and

overlaying a display status on the first television program displayed on the third area of the screen.

20 2. The method of claim 1 further comprising:

invoking a first display status responsive to a user command;

moving the on screen cursor vertically to highlight a second television program listing in the first area; and

25 maintaining display of the first television program represented by the first television program listing in the third area of the screen.

3. The method of claim 2 further comprising:

30 invoking a second display status responsive to a user command;

moving the on screen cursor vertically to highlight a third television program listing in the first area; and

replacing the display of the first television program represented by the first television program listing in the third

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area of the screen with a display of a third television program represented by the third television program listing.

5

4. The method of claim 2 further comprising:

receiving a first user command invoking a full screen television mode from the on screen television interactive program guide;

10 displaying a full screen television program in response to the first user command;

receiving a second user command invoking a grid guide mode from the full screen television program;

15 returning to the on screen television interactive program guide in response to the second user command; and

re-displaying the first television program represented by the first television program listing in the third area of the screen.

20 5. The method of claim 1 further comprising tuning to an advertisement channel carrying the displayed advertisement.

25 6. The method of claim 1, wherein the advertisement is selected based on a television channel being tuned to prior to invoking the interactive program guide.

7. The method of claim 1 further comprising activating a function with respect to the highlighted advertisement.

30 8. The method of claim 6, wherein the function is displaying on the screen details about the highlighted advertisement.

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1 39674/JEC/I148

9. The method of claim 7, wherein the advertisement promotes a future television program and the function is storing
5 the time and channel of the future television program for later recording or viewing.

10. The method of claim 7, wherein the function is establishing a link to an Internet website for display of still
10 images or video on the screen in the second area instead of the advertisement.

11. The method of claim 7, wherein the function is establishing a link to an Internet website for display of still
15 images or video in a fourth area of the screen different from the first and second areas.

12. The method of claim 1 further comprising:
collecting viewer profile data; and
20 selecting the advertisement based on the viewer profile data.

13. The method of claim 12, wherein the viewer profile data includes viewer interaction data selected from the group
25 consisting of viewer interactions with the interactive program guide, viewer television watching characteristics, viewer interactions with a remote control device, and viewer interactions with a computer network.

14. An interactive television system comprising:
30 a tuner for receiving a television signal carrying a television program;
a memory storing multiple types of data including a database of television scheduling data and a database of advertising
35 information;

5 a display monitor coupled to the tuner and the memory, a first area of a screen of the display monitor displaying a portion of the television scheduling data as vertically arranged program tiles, a second area of the screen located horizontally adjacent to the first area displaying an advertisement based on the advertising information, and a third area of the screen displaying the television program;

10 means highlighting a first television program listing in the first area;

means for receiving a first television signal carrying a first television program represented by the first television program listing;

15 means for displaying the first television program in the third area of the screen; and

means for overlaying a display status on the first television program displayed on the third area of the screen.

20 15. The system of claim 14 further comprising:

means for receiving a user command invoking a first display status;

means for highlighting a second television program listing in the first area; and

25 means for maintaining display of the first television program in the third area of the screen.

16. The system of claim 15 further comprising:

30 means for receiving a user command invoking a second display status;

means for highlighting a third television program listing in the first area;

35 means for receiving a third television signal carrying a third television program represented by the third television program listing; and

1 39674/JEC/I148

means for replacing the display of the first television program represented by the first television program listing in the third area of the screen with a display of a television program represented by the third television program listing displaying the third television program in the third area of the screen.

10 17. The system of claim 15 further comprising:

means for receiving a first user command invoking a full screen television mode and the on screen television interactive program guide;

15 means for displaying a full screen television program in response to the first user command;

means for receiving a second user command invoking a grid guide mode from the full screen television program;

means for returning to the on screen television interactive program guide in response to the second user command; and

20 means for re-displaying the television program represented by the first television program listing in the third area of the screen.

25 18. The interactive television system of claim 14 further comprising means for tuning to an advertisement channel carrying the displayed advertisement.

30 19. The interactive television system of claim 14, further comprising means for selecting the advertisement based on a television channel being tuned to prior to invoking the interactive program guide.

35 20. The interactive television system of claim 14 further comprising means for activating a function with respect to the selected advertisement.

21. The interactive television system of claim 17, wherein
the function is displaying on the screen details about the
5 selected advertisement.

22. The interactive television system of claim 17, wherein
the advertisement promotes a future television program and the
function is storing the time and channel of the future television
10 program for later recording or viewing.

23. The interactive television system of claim 14 further
comprising means for establishing a link to an Internet website
for display of still images or video on the screen in the second
15 area instead of the advertisement.

24. The interactive television system of claim 14 further
comprising means for establishing a link to an Internet website
for display of still images or video in a sixth area of the
20 screen different from the first and second areas.

25. The interactive television system of claim 14 further
comprising:
means for collecting viewer profile data; and
25 means for selecting the advertisement based on the viewer
profile data.

26. The interactive television system of claim 25, wherein
the viewer profile data includes viewer interaction data selected
30 from the group consisting of viewer interactions with the
interactive program guide, viewer television watching
characteristics, viewer interactions with a remote control
device, and viewer interactions with a computer network.

5 **SYSTEMS AND METHODS FOR DISPLAYING AND RECORDING CONTROL
INTERFACE WITH TELEVISION PROGRAMS, VIDEO, ADVERTISING
INFORMATION AND PROGRAM SCHEDULING INFORMATION**

ABSTRACT OF THE DISCLOSURE

10 The present invention is an improvement over previous
Electronic Programming Guides ("EPG") in that it provides, among
other things: Improved viewer interaction capabilities with the
EPG; improved viewer control of video recording of future-
scheduled programming; improved features to the EPG display and
navigation; parental control of the EPG display; improved
15 television program information access by the viewer; improved
opportunities for the commercial advertiser to reach the viewer;
improved product information access by the viewer; creation of
a viewer's profile; utilization of viewer profile information to
customize various aspects of the EPG; and utilization of viewer
20 profile information to provide customized presentation of
advertising to the viewer.

1 25 DAA PAS256823.1--*-6/16/00 1:46 PM

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FIG. 1

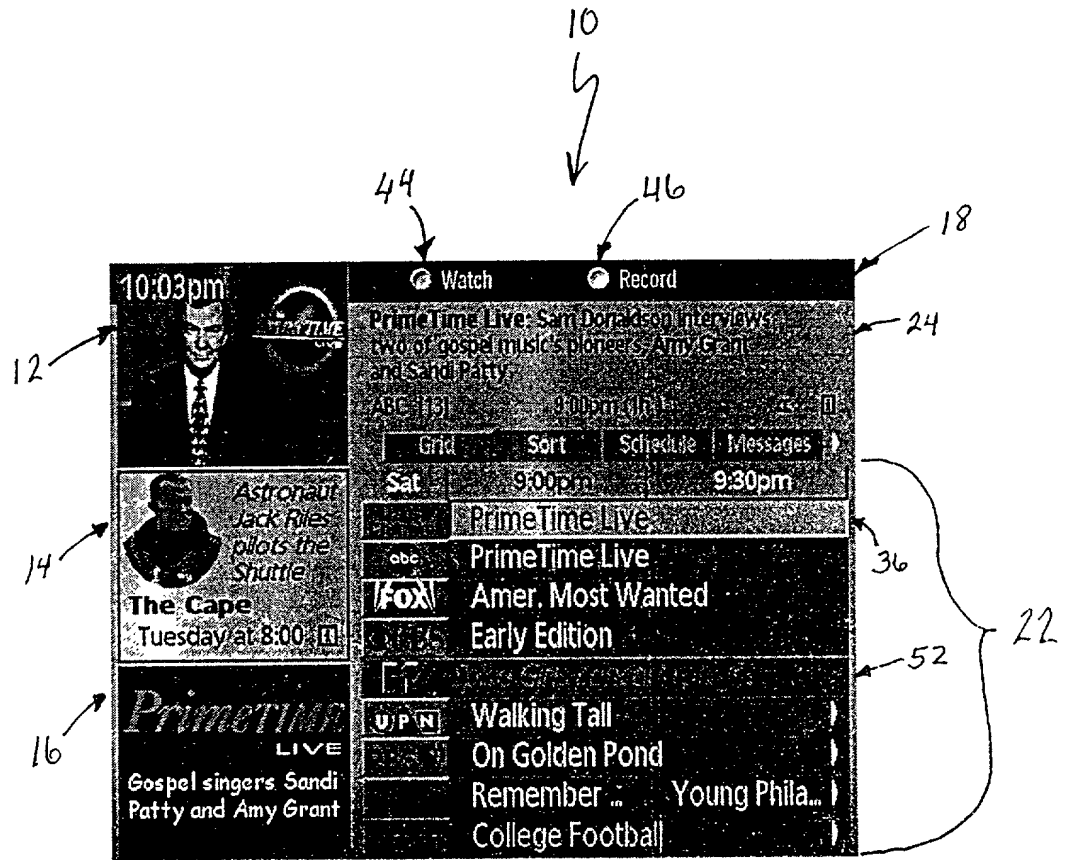


FIG. 2

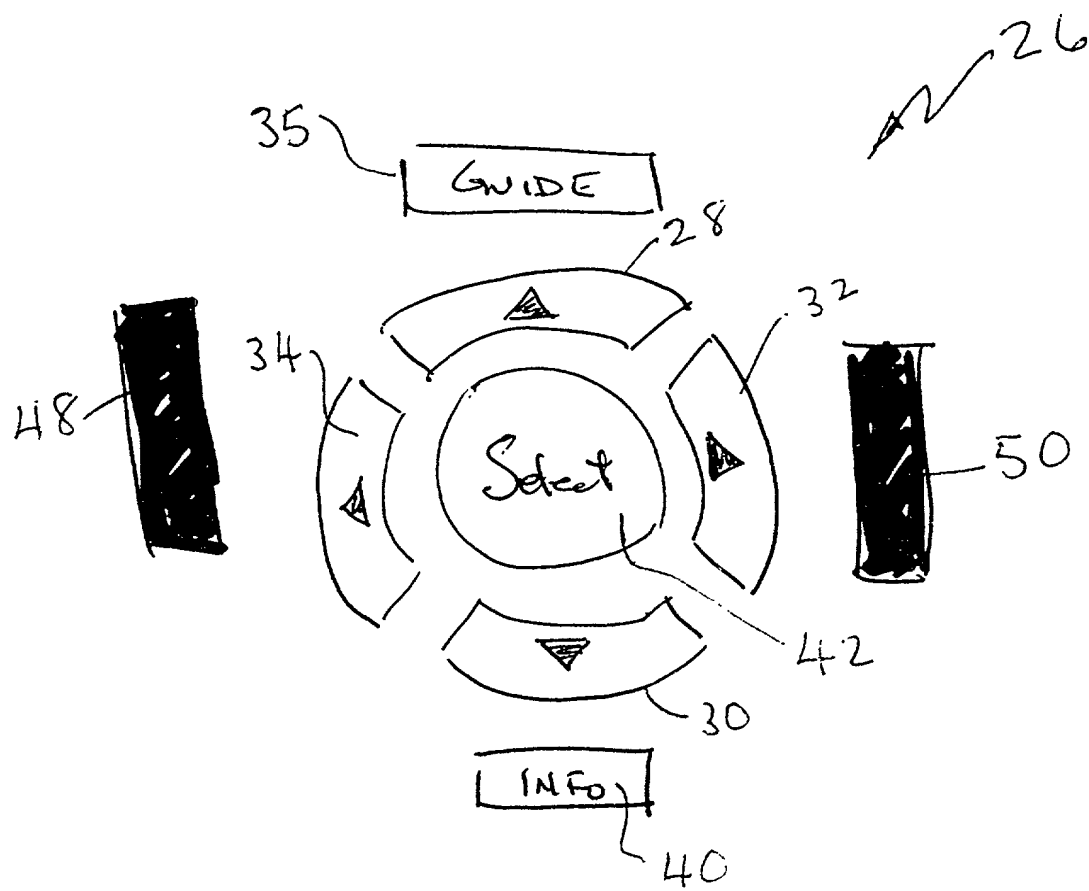


FIG. 3 - Scrolling Down

The user scrolls down using the down directional arrow key.

- The currently highlighted show is displayed with dark text on a light background.

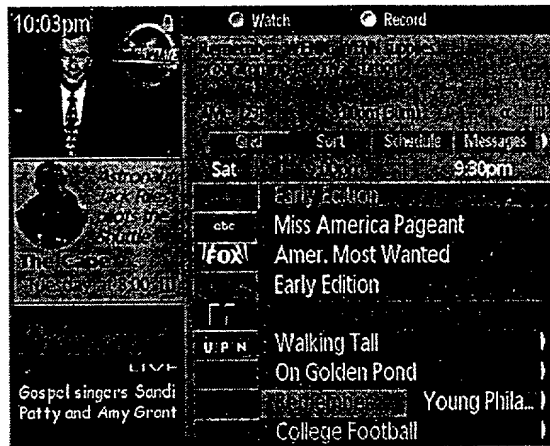


FIG 4a - Unlocked Video Window

Scrolling to the column of channel tiles allows the user to lock or unlock the Video Window.

- Here the Video Window is unlocked as indicated by the message in the info. box and the lack of any icon in the Video Window.

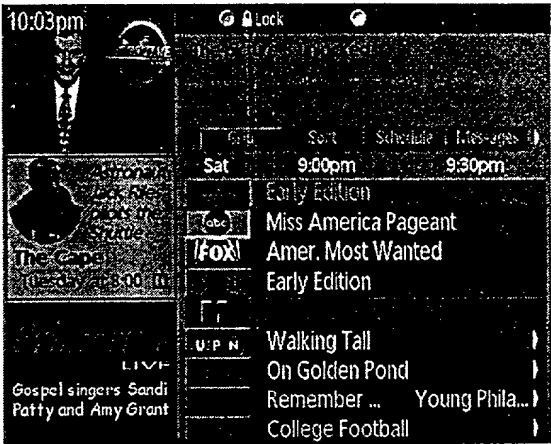


FIG. 4b - Locking the Video Window

Pressing the Blue action button causes the Video Window to lock.

- The lock icon appears in the Video Window.
- The text in the info. box indicates which channel the Video Window is locked onto.
- The user may unlock the Video Window by pressing the Blue action button again.

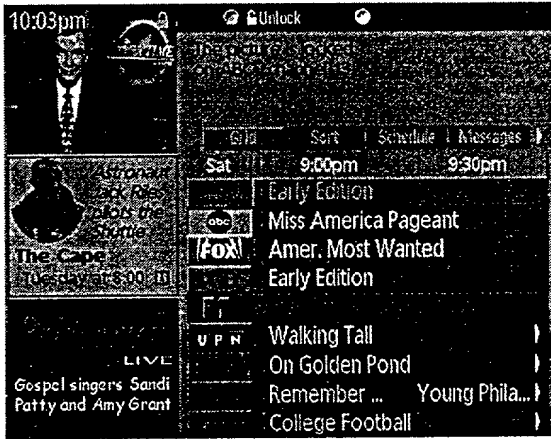


FIG. 5 - Watch Scheduling

Pressing the Blue action button schedules a highlighted program to be watched once. The tile highlight turns orange, a confirmation message appears in the info. box, the action button labels change.

- Pressing the Green action button from any show scheduled to record or watch will allow the user to enter the Schedule to modify the recording frequency (once, daily, weekly).
- Without moving the highlight, pressing the Blue action button will cancel the scheduled watch.

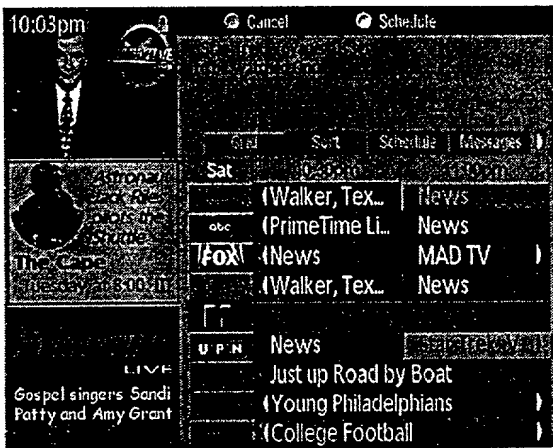


FIG. 6 - The Watch/Record Schedule

All shows scheduled to record or watch are displayed in the Schedule. Shows may be removed or frequencies set (once, daily, weekly) from this screen.

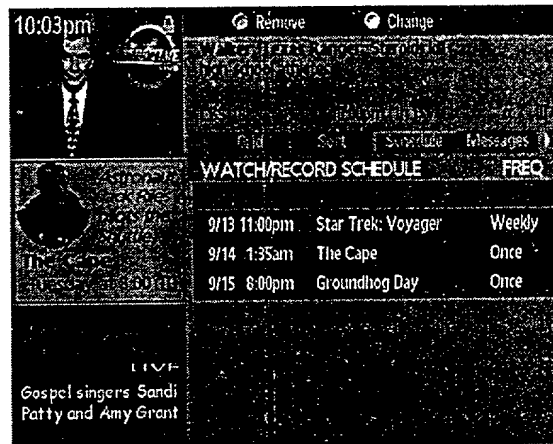


FIG. 7 - First Level Theme/Sort Screen

The screen display shown depicts the Movies theme/sort screen. Scrolling down off the Menu places the highlight on the first sub-category for the displayed category (the first sub-category is always "All."). Scrolling right enables the user to access the other categories: Sports or Children's.

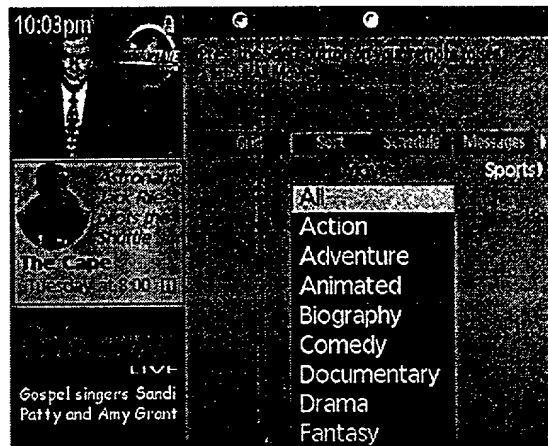


FIG. 8 - Second-level Theme/Sort screen

A sample second-level theme/sort screen for the Movies theme/sort screen is depicted in the on screen display. Pressing the Select key while on a desired sub-category tile displays the show listings for the show category.

- Shows are listed in chronological order.
- Shows may be recorded or scheduled to watch from this screen.
- Scrolling right will display the next day's programming for this sub-category.

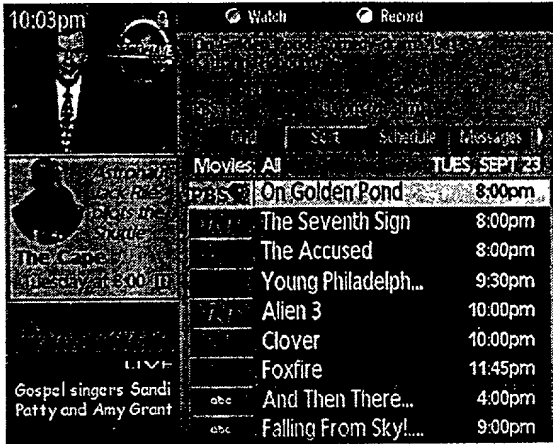


FIG. 9 - The Channel Guide

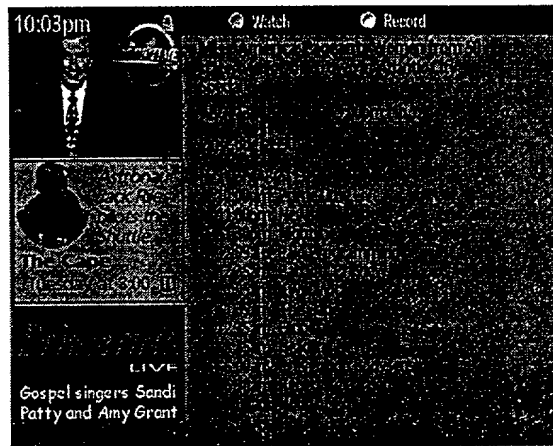


FIG. 10 a - Highlighting Panel Ad #1

Highlighting a Panel ad automatically expands the information box providing additional ad information.

- If additional pages of ad information exist, they are obtained by pressing the info key again.
- Pressing the info key on the last info screen available causes the info. box to contract to its original dimensions.
- Pressing the right directional arrow closes the ad and moves the highlight to the last highlighted channel in the channel column.
- Pressing the down directional arrow moves the highlight to Panel ad #2.

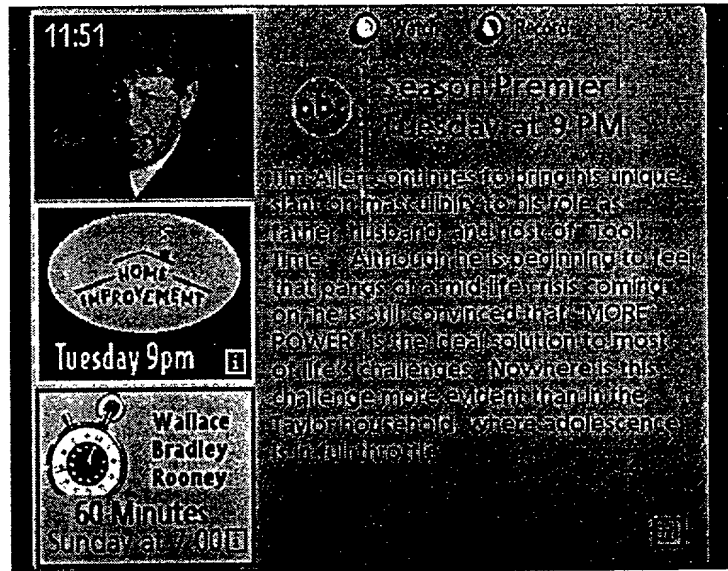
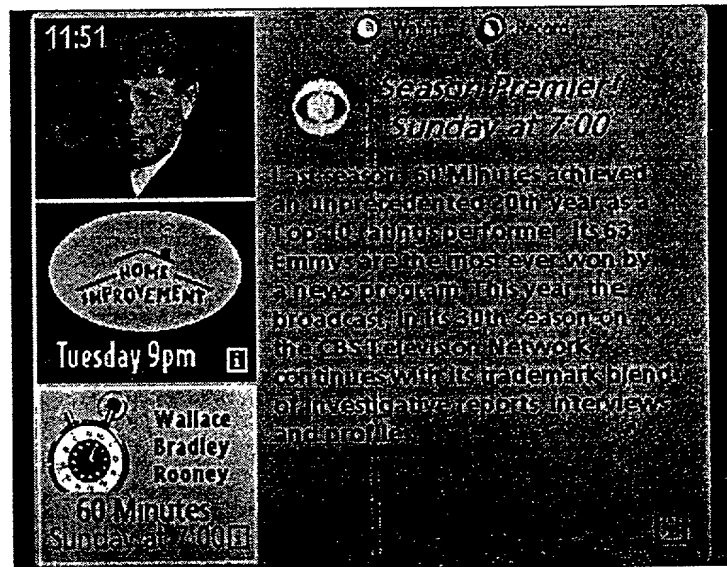


FIG. 10 b - Highlighting Panel Ad #2

Scrolling down from Panel Ad #1 highlights Panel Ad #2 and automatically expands the information box providing additional ad information.

- If further additional pages of ad information exist, they are obtained by pressing the info key again.
- Pressing the info key on the last info screen available causes the info. box to contract to its original dimensions.
- Moving the right closes the ad and moves the highlight to the last highlighted channel in the channel column.

■ Pressing the up directional arrow moves the highlight to Panel ad #1.





INDEX SYSTEMS INC.

GUIDE Plus+™ System

User Interface Design

GUIDE Plus+ Picture-in-Guide Version (PY 98)

Blue/Green Action Buttons

Version 1.42stv

February 13, 1998

Index Systems Inc. 1995-1998
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1.0 Introduction

This document provides the details of how the GUIDE Plus+ user interface looks and is controlled. It is not intended to outline the complete set of OEM requirements.

This document contains the following specifics:

- Overview of Guide screen components
- Remote control navigation, actions, and tables.
- Screen shots and descriptions (to follow)

This document focuses on the GUIDE Plus+ Picture-In-Guide (PIG) version available as of Production Year 1998, using the GS-301 hardware platform.

The GUIDE Plus+ system is a technology developed by Index Systems Inc., a subsidiary of Gemstar International Group Ltd. The system is designed to provide an interactive electronic program guide to consumers. In addition to its primary program guide function, the GUIDE Plus+ system also provides a program recording function. Furthermore, the GUIDE Plus+ system is designed as a platform to deliver additional information to the customer.

2.0 Definitions

Definition: “Guide98” is the code name for the Production Year 1998 User Interface of GUIDE Plus+.

Definition: “Screen” is the GUIDE Plus+ user interface presented on the TV screen.

Definition: “Information Box” is the textual area located near the top of a screen in which descriptive or help text is displayed.

Definition: “Grid” is the area of the Guide containing Show Titles, Channel Logos, show Day and Time labels, and Channel Ads.

Definition: “Panel Ad” is an ad covering 1/9th or 2/9th of a screen located on the left-hand side of the screen, below the Video Window.

Definition: “Channel Ad” is an ad located within the channel listings.

Definition: “Action Buttons” are the context sensitive buttons located on the remote and labeled at the top of the screen providing, but not limited to, the functions of Record, Watch, Lock/Unlock Video Window.

Definition: “Action Bar” is the area along the top of the screen containing the action buttons and labels and product logo.

Definition: “Destination Buttons” are the buttons located below and adjacent to the information box which provide access to other destinations in the Guide such as Themes, Record List, Setup, Messages, Channel Editor and the Guide.

Definition: “Menu Bar” is the area in which the Destination Buttons are located.

Definition: “Tiles” are the on-screen Guide components which the user can highlight by pressing the up/down, left/right and in certain cases other optional buttons on the remote. Examples of tiles are: the title tiles, the panel ads, the destination buttons.

Definition: “Highlight” is the term used to describe the look of the screen tile on which the remote will act if an action button or the Select key is pressed.

3.0 General Screen Components

Screens are comprised of several distinct areas. Not all screens contain all of the following components. Screens displaying the components of each individual screen can be found in section 4.6. The major components are:

3.1 Video Window Area

The Video Window is located in the top left corner, occupies 1/9th of the screen and contains the following elements:

- 3.1.1 Video display of a channel.
- 3.1.2 A “lock” icon when the show in the window is locked.
- 3.1.3 A 12 hour clock without AM/PM designation.

3.2 Guide Areas

The Guide area covers the right-hand 2/3rds of the screen and consists of 4 distinct areas:

- 3.2.1 The Guide Data area located directly below the Menu Bar occupies the majority of the Guide area. It consists of a “table” of data. The table for each destination (Grid, Sort, Schedule, Messages, Editor and Setup) differs to meet the requirements of the destination.
 - 3.2.1.1 Grid data area:
 - Column headings from left to right are: the day of the week (abbreviated), followed by two half-hour time slots labeled in the form “11:30 PM.”
 - Directly below the day of the week is a column of channel logos. In the event that a station does not have a logo, the station call letters will be displayed (4 letter maximum). The channels will be displayed in a pre-defined order. The first channel is always labeled “Last Channel” and is the channel that the user was watching before entering the guide.
 - Directly below the half-hour time headings are the show title tiles. Titles are in the condensed version of the larger of the two font sizes. Titles are truncated as needed and followed by ellipsis when truncation is required.
 - A Channel Ad may occupy a channel slot in the Guide Grid. There may be multiple Channel ads in a grid but they generally will be spaced so that no more than one is visible at a time. When a Channel ad is highlighted, the information box displays text related to the ad.
 - 3.2.1.2 Sort data area:
 - First Level:
 - Labels from left to right are: category to the left (if there is one), label for the currently displayed category, category to the right (if there is one).
 - Centered below the category heading for the current screen is a list of sub-categories beginning with the “All” sub-category and followed by all other sub-categories in alphabetically order.
 - Second Level:
 - Headings from left to right are: the currently displayed category and sub-category, left justified; and the day and date, right justified.

- Directly below the category heading is a column of channel logo/call letters.
 - To the right of the channel logos/call letters are titles of shows for this sub-category.
 - To the right of the show titles is the start time for each show.
- 3.2.1.3 Schedule data area:
- Labels from the left to right are: Record/Watch Schedule label, left justified; Frequency, right justified.
 - Directly below is a list of all shows set to record or scheduled to watch in chronological order. The list includes the following information from left to right: show date, time, title and frequency. The background color of the listing indicates whether the show is set to record (red background) or watch (orange background).
- 3.2.1.4 Messages data area:
- The list of messages has the heading “Messages,” left justified.
 - The messages follow in a list, one message per line.
 - The last message is always entitled “Serial Number.”
- 3.2.1.5 Editor data area:
- The list of channels in the Editor has the heading “Channel Editor,” left justified.
 - The channels in the user’s lineup follow in the same order in which they are listed in the Grid, one channel per line.
 - The information for each channel includes from left to right: the station call letters, the channel number to which the user must tune to access this station and the state of the channel, on or off. If a channel state is on, the background color of the tile is blue, if the channel state is off, the background color of the tile is gray.
- 3.2.1.6 Setup data area:
- The setup screens consist of a series of questions providing the user the ability to set initial settings, modify current settings, or view the demo. The items in setup include: country, ZIP or Postal Code, cable service, cable box brand and cable box output, and VCR brand.
- 3.2.2 The Action Button Bar located at the top of the screen includes from left to right, labels for the “1, 2, 3” action button functions and the GUIDE Plus+ logo.
- 3.2.3 The Information Box, located below the action bar, displays information about shows or ads or help text when a destination button is highlighted. The Information Box automatically displays first level information regarding shows and automatically expands when a Panel Ad is selected (see section 3.3 for more information on Panel ads).
- 3.2.3.1 First level show information includes:
- The show title, MPAA or Parental Guideline ratings, critics star ratings for movies, description, (lead stars and director and year for movies), channel call letters, tuning channel number, start time, duration, icons for stereo, closed caption, and the “i” icon indicating there is more information when appropriate.
- 3.2.3.2 Second level information, accessed by pressing the Info. key, includes additional show description if any, the PlusCode if applicable, and lists the shows next on the channel until the remaining space in the first expanded info. box is filled.
- 3.2.4 The Menu Bar, located directly below the Information Box, includes destination buttons to access various areas within the Guide. Arrows on the left and right of the Menu Bar indicate when there are more destination buttons to the left or right that are not on screen. The Menu Bar is non-circular. The destinations are listed in the following order: Grid, Sort, Schedule, Messages, Editor, and Setup. It is anticipated that any new service

destination buttons would be inserted to the right of the Schedule button. When a destination icon is highlighted in the Menu Bar, an explanation (“help”) is displayed in the info. box and the first screen of the highlighted destination button appears. The Menu Bar appears on only the first Setup screen.

3.2.4.1 Each destination has a default screen display position which is displayed whenever the service is accessed by moving the highlight to its destination button. The default displays for the destinations are as follows:

- Grid: the top of the show listings (beginning with Last Channel), in the current time slot
- Sort, first level: the first time the Sort destination button is ever highlighted: the top of the *Movies* category; subsequently the top of the *last viewed* category (second level: when a sub-category is selected, the show that began first which is currently on or next on will be displayed)
- Schedule: the top of the Schedule listings, beginning with the next scheduled program; if nothing is scheduled, a message indicating this is displayed.
- Messages: the top of the list of Messages, with the most recently received message at the top
- Editor: the top of the list of channels, displayed in the same order as they would appear in the Grid if they were all turned on
- Setup: the initial Setup screen

3.3 Panel Ad Area

The Panel Ad area is located on the left-hand side of the screen, below the Video Window. It occupies 2/9ths of the screen.

- 3.3.1 The Panel Ad area may be comprised of 2 ads, each the same size as the Video Window (1/9th of the screen) or one ad occupying 2/9ths of the screen. Borders around these ads separate them from each other and from the Video Window and the guide grid. When a panel ad is highlighted by a user, the information box expands automatically to cover the entire grid area below the action bar displaying additional ad text. The blue background behind the Action bar buttons turns gray matching the background behind the info. box text.

Clock	Lock Icon	Action Bar
Video Window		Info Box
		Navigation Bar
Panel Ad Advertising Area		Guide Data Area (show tiles, channel logos, virtual channel ads, schedule or message listings, etc.)

Fig. 1 : Picture-in-Guide Screen Components

3.4 Highlighting

- 3.4.1 Tiles (a “Show” tile, a “Channel Logo”/call letter tile, Sort category tile, Message tile, or Channel tile in the Editor) have two states :
- de-highlighted (light text on dark background), and
 - highlighted (dark text on light color background) A highlighted tile will be shown as “recessed” from the rest of the Grid.
- 3.4.2 Menu Bar Destination Buttons: Destination buttons use the same highlighting metaphor used for show tiles (3.4.1 above). When the highlight is moved off the Menu Bar, all destination buttons are displayed in the de-highlighted dark background and light text. The destination last highlighted has bevels around it. The other destinations appear to be on a flat background.
- 3.4.3 Ad areas, both Panel ads and Channel ads, do not change when highlighted or de-highlighted. When highlighted, a yellow non-beveled border surrounds an ad. When an ad is set to record this border is red (dark red when not highlighted, light red when highlighted). When an ad is scheduled to watch the border is orange (dark orange when not highlighted, light orange when highlighted).

3.5 Color Schemes

- 3.5.1 Show Tiles: have one of five thematic background color schemes (this number is subject to change as more thematic information becomes available):
- Dark Blue background for Movies (in the Grid or Sort)
 - Green background for Sports (in the Grid or Sort)
 - Light Blue for Children’s (in the Grid or Sort)
 - Grey background for any shows on the “Last Channel” (takes precedence over thematic information)
 - Dark Teal background for any other shows (in the Grid or Sort)

- 3.5.2 Channel Logo/call letter Tiles: The logos are displayed using a 12 color palette on a gray background. If a logo is not available, black call letters (up to 4 characters maximum) are displayed on a gray background.
- 3.5.3 Menu Bar (Destination) Tiles: Gray background.
- 3.5.4 Message Tiles: may have different background colors depending upon the type of message:
 - Light Blue background for Customer Service messages, including the Serial number message.
 - Green background for Promotional messages.
 - Red background for Urgent messages (may be Customer Service messages).
 - Other colors may be used.
- 3.5.5 Channel Editor Tiles: have different colors depending upon the state of the channel:
 - Channels turned on are Light Blue.
 - Channels turned off are Gray.
- 3.5.6 Action Colors: Show tiles and ads can also be marked for “Recording” (Red color scheme) or for “Watching” (Orange color scheme). These colors take precedence over any background color schemes listed above.
 - When show tiles are marked for Recording/Watching, the background changes to red/orange. When highlighted, the background color is a light red/orange, when de-highlighted it is dark red/orange.
 - When ads, Panel ads and Channel ads, are marked for Recording/Watching, the flat border surrounding the ad changes to red/orange. When highlighted, the border are light red/orange, when de-highlighted they are dark red/orange.

4.0 Remote

4.1 Navigation Methods (See the Remote Tables for screen by screen specifics)

4.1.1 Basic Navigation - Directional Arrow Movement

The primary GUIDE Plus+ navigational methodology uses up/down and left/right directional keys on the remote to move an ever-present “highlight” from “tile” to “tile” (a tile may contain a show title, an ad, a navigation destination, etc.) in the Guide.

4.1.1.1 Right Directional Arrow:

- When a tile is visible to the right of the currently highlighted tile, pressing the right directional arrow moves the highlight onto that tile.
- When the highlight is on the rightmost visible column of tiles and there are more similar tiles to the right, and the right directional key is pressed, the tile or column of tiles just to the right smooth-scroll onto the screen and the leftmost column of tiles disappears.
- If the highlight is positioned on the last column of tiles (e.g. the highlight is on the last available time slot), pressing the right directional arrow does nothing.
- If the highlight is positioned on the channel column, pressing the right directional arrow moves the highlight onto the show title on that channel in the current time slot.
- If a Panel ad is highlighted, pressing the right directional arrow moves the highlight to the next column of data to the right onto the last item highlighted in that column. For example, while using the Grid, pressing the right directional arrow from a highlighted Panel ad moves the highlight to

the channel logo/call letter tile last highlighted in the channel column. (The channel from which the first Panel Ad was entered.)

4.1.1.2

Left Directional Arrow:

- When a tile is visible to the left of the currently highlighted tile, pressing the left directional arrow moves the highlight onto that tile.
- If the highlight is on the leftmost visible tile or column of tiles and there are more similar type tiles to the left, and the left directional key is pressed, the tile or column of tiles just to the left smooth-scroll onto the screen and the rightmost column of tiles disappears.
- If the highlight is in the current time slot or other left column starting point (e.g. the Movies Sort Category), pressing the left directional arrow will take the highlight to the next visible tile to the left (e.g. the channel column in the Grid, or the Panel Ads from the Sort screen). Note: if moving left takes the highlight to a Panel Ad, the top Panel Ad will become highlighted from tiles to the right of it (e.g. the top 4 channels in the Grid) and the bottom Panel Ad will become highlighted from the tiles to the right of it (e.g. the bottom 5 channels in the Grid).
- If the highlight is on a Panel Ad, pressing the left directional arrow will do nothing.

4.1.1.3

Up Directional Arrow:

- When a tile is visible above the currently highlighted tile, pressing the up directional arrow moves the highlight onto that tile.
- If the highlight is on the topmost visible tile or row of tiles and there are more similar type tiles above, and the up directional key is pressed, a new set of tile rows will appear a full page at a time. (e.g. 9 new tile rows in the Grid.) The highlight will appear on the bottom tile row and the same time slot if applicable.
- If the highlight is on the first entry in the list (e.g. the Last Channel tile in the Grid, or the All Movies Sort category tile), pressing the up directional arrow moves the highlight to the Menu Bar.
- If the highlight is on the Menu Bar, pressing the up directional arrow will do nothing.

4.1.1.4

Down Directional Arrow:

- When a tile is visible below the currently highlighted tile, pressing the down directional arrow moves the highlight onto that tile.
- If the highlight is on the last visible tile or row of tiles and there are more similar type tiles below, and the down directional key is pressed, a new set of tile rows will appear a full page at a time. (e.g. 9 new tile rows in the Grid.) The highlight will appear on the top tile row and the same time slot if applicable.
- If the highlight is positioned so that less than a full screen is remaining off screen below in the list (e.g. less than 9 tiles in the Grid), pressing the down directional arrow will display the partial page.
- Pressing the down arrow from the last tile in such a partial page will do nothing.
- If the highlight is on the Menu Bar, pressing the down directional arrow moves the highlight to the first item in the list below.

4.1.2 Shortcut Navigation

The system provides additional ways which are optional to the manufacturer to move the highlight by pressing keys other than the up/down, left/right keys.

4.1.2.1 Direct Dialing

The system supports jumping the highlight from channel to channel in the Grid through direct dialing. The user, presses digit keys on the remote to jump the highlight directly to a desired channel in the guide's grid. When the highlight jumps, the entire hard page associated with the direct-dialed channel appears. As digits are dialed visual feedback is displayed in a dialog box covering the info. box. The system will expect 1, 2 or 3 digits depending upon the active channels in the user's channel lineup. Once the full number of digits is dialed, the highlight goes to the desired channel in the grid in the currently selected time slot. If there is no time slot currently selected (for example, the highlight was on a Panel ad or a destination button) the highlight jumps to the desired channel in the current time slot. If the user does not press the full number of expected digits, the system will time out without moving the highlight. If the user presses less than the expected number of digits and follows with the Select key, the highlight will go to the desired channel. If a dialed channel is not active in the user's lineup (either it is not in the lineup or it is turned off), the message "Channel not available" will appear in a dialog box in the info. box.

4.1.2.2 Menu/Menu Bar Jumping

The system allows the user to jump the highlight directly to the Menu Bar by pressing the Menu key. Once the Menu key is pressed, the highlight jumps to the destination button in the menu bar associated with the currently displayed screen. The screen does not redraw.

- If the user presses the Menu key again (without any other key presses) the highlight jumps back to the last highlighted tile in that screen. This allows the user to toggle up to the menu and back if they pressed menu by mistake.
- If the user scrolls left or right once on the Menu bar, pressing the menu button highlights the first entry in the displayed screen e.g. the Last Channel in the current time slot, the first Sort category, the first Message, etc.
- Pressing the down directional arrow with a destination button highlighted as a result of pressing the Menu key moves the highlight to the first entry in the screen below.

4.1.2.3 Page Up/Page Down

The system supports mapping remote keys to provide the ability to page up or down from one full set of screen information to the next.

- **Page Up:** When the highlight on a tile in the Grid or Sort titles, Message listings, or Editor channels and the user presses the button mapped to Page Up and there is a full page of data above, the screen fills with the new data. The highlight remains in the same relative location on screen. If there is not a full page of data above, the highlight jumps to the top entry of the currently displayed screen. Once at the top of the data listing, highlight moves onto the menu bar, from the menu bar pressing Page Up does nothing.
- **Page Down:** When the highlight on a tile in the Grid or Sort titles, Message listings, or Editor channels and the user presses the button mapped to Page Down and there is a full or partial page of data below, the screen fills with the new data. The highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available. If the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen. Once at the bottom of the data listing, pressing Page Down does nothing.

4.1.3 The Menu Bar

The Menu Bar, accessed either by pressing the up directional arrow or page up key from the top of any set of data in a screen (for example from a Last Channel show tile) or pressing by the Menu key, provides access to all the destinations in GUIDE Plus+. By highlighting a destination button on the Menu Bar, the related destination appears on screen with no additional key presses on the remote. The Menu Bar is accessible from all screens except all but the first Setup screen, the demo screens and any time the info. box is expanded.

4.1.3.1 There are three ways to move the highlight into a destination screen from the menu bar:

- Pressing the down directional arrow (expected to be the most common means of entry) in almost all cases moves the highlight to the top left entry currently displayed on the screen. The one exception is if the Menu Bar was accessed by pressing the up directional arrow while the right time slot in the Grid was highlighted and then down directional arrow was pressed with no other key presses while the highlight was on the Menu bar.
- Pressing the Select key moves the highlight to the top left entry in the currently displayed screen.
- Pressing the Menu key moves the highlight to the top left entry in the currently displayed screen or if the Menu bar was accessed by pressing the Menu key and no other keys were pressed while the highlight was on the Menu bar the highlight jumps to the last highlighted tile in the currently displayed screen. See section 4.1.2.2 above for details.

4.1.3.2 Default Destination: Once a destination button is highlighted, the screen displays the default position for that screen as follows:

- Grid: The top of the screen (starting with Last Channel, ABC, etc.) on the current day, in the current time slot.
- Sort: The last used Sort category (Movies, Sports or Children's), the top of the screen (first sub-category in the Sort category). Additionally, when a Sort sub-category is entered, the highlight is on the on the first entry.
- Schedule: The top of the schedule.
- Messages: The top of the message list.
- Editor: The top of the list of channels in the Editor.
- Setup: The first Setup screen. Note: The menu bar is only available from the 1st setup screen.

4.2 Actions on Guide Tiles

4.2.1 Actions upon highlighted tiles in the Guide are executed by pressing specific keys on the remote as follows:

4.2.1.1 "Select" Key: Tunes to a channel if the highlight is on a show title or ad with program information. If the highlight is on a destination button in the Menu Bar, pressing Select enters the requested destination screen. If the highlight is on an item in a setup screen, pressing the Select key executes the request.

4.2.1.2 Action Buttons: There are two context sensitive action buttons, Blue and Green, labeled in the Action Bar. The functions of the Action Buttons change depending upon where the highlight is located. Generally, the Action Buttons are used to execute Recording, Watch, and locking and unlocking the Video Window. These buttons perform additional functions on other screens as outlined in section 4.3 and the remote tables in section 4.5.

4.2.1.3 Info Button: Pressing the info button brings up more information on a selected tile (e.g. show descriptions or additional advertising text).

4.2.2 Scheduled Actions: Recording and Watch

- 4.2.2.1 **Recording:** The Recording feature allows the user to record a show in progress or scheduled to be on in the future from a highlighted show tile or ad with related show information. There is no practical limit on how far into the future an ad-related show may be scheduled to record. Shows may be set to record Once, Daily (M-F) or Weekly.
- 4.4.2.1.1 A show is recorded by pressing the Green action button while the show tile or ad is highlighted. Pressing the Green action button causes the highlight of the tile to turn red, the info. box background to turn green, a message to appear in the info. box indicating the show is set to record once, the label on the Blue action button to change to “Cancel,” and the label on the Green action button to change to “Schedule.” If a show is already set to record or watch in this time slot, different actions will occur as follows: the highlight of the tile does not change, the info. box background turns red, a conflict message appears in the info. box, there is no label on the Blue action button, the label on the Green action button changes to “Schedule.”
- 4.4.2.1.2 The user may cancel the recording by pressing the Blue action button before moving the highlight off the tile. Once the highlight is moved off the tile, the user must enter the Schedule to remove a show. Additionally, recording of any show may be canceled before it commences by removing the title from the Schedule. A recording in progress may be stopped by entering the Schedule, highlighting the title of the show and pressing the Blue action button labeled “Stop.” If the show was set to record once, this also removes the show title from the Schedule, if it was set to record daily or weekly, the title remains and the Blue action button label changes to “Remove.”
- 4.4.2.1.3 The user may enter the Schedule by pressing the Green action button with any show set to record or watch highlighted, or via the Schedule destination button on the menu. The default record frequency is once; from the Schedule, the user may select a record frequency of once, daily or weekly.
- 4.4.2.1.4 In the event that the show is currently on, pressing the Green action button while highlighting a show or ad immediately commences recording of the show in progress; the show title is also placed in the Record Schedule until the show ends to enable the user the ability to modify the record frequency to daily or weekly.
- 4.4.2.1.5 The title of a show set to record is displayed in the Schedule whenever the title is stored in the guide’s database. In the event a show title is not in the database (e.g. the ad related show is too far in the future or a once-a-week show such a ER is set to record Weekly on Thursdays and it is now Friday) the Schedule will display the channel call letters and tuning number instead of a title. If the start time or duration of a show scheduled to record is changed, the words “Schedule Changed” will appear instead of a title, a message explaining this will appear in the info. box, and the record event will be ignored.
- 4.2.2.2 **Watch (Auto-tune):** The Watch feature allows the user to watch a show in progress or schedule for future viewing from a highlighted show tile or ad with related show information. There is no practical limit on how far into the future an ad-related show may be scheduled to watch. Shows may be scheduled to Watch Once, Daily (M-F) or Weekly. The Watch feature operates much the

same way as the Record feature, except that instead of recording it tunes the TV to the show rather than recording it. If a user is watching TV, the channel automatically changes to a show placed in the Watch Schedule when the show begins. Once the show ends, the TV remains on. If the TV is turned off when a show in the Watch Schedule is scheduled to begin, the TV is turned on and tuned to the desired channel; when the show ends the TV remains on if the user has pressed any remote control keys while viewing the show, if no remote keys were pressed while the watched show was on, the TV will turn off. If the user is using the Guide when a scheduled watch show begins, the Guide is exited and the desired show tuned.

- 4.4.2.2.1 A show is scheduled to watch by pressing the Blue action button while the show tile or ad is highlighted. Pressing the Blue action button causes the highlight of the tile to turn orange, the info. box background to turn green, a message to appear in the info. box indicating the show is set to watch once, the label on the Blue action button to change to “Cancel,” and the label on the Green action button to change to “Schedule.” If a show is already set to record or watch in this time slot, different actions will occur as follows: the highlight of the tile does not change, the info. box background turns red, a conflict message appears in the info. box, there is no label on the Blue action button, the label on the Green action button changes to “Schedule.”
- 4.4.2.2.2 The user may cancel the scheduled watch by pressing the Blue action button before moving the highlight off the tile. Once the highlight is moved off the tile, the user must enter the Schedule to remove a show. Additionally, watch scheduling of any show may be canceled before it commences by removing the title from the Schedule.
- 4.4.2.2.3 The user may enter the Schedule by pressing the Green action button with any show set to record or watch highlighted, or via the Schedule destination button on the menu. The default watch frequency is once; from the Schedule, the user may select a watch frequency of once, daily or weekly.
- 4.4.2.2.4 In the event that the show is currently on, pressing the Green action button while highlighting a show or ad immediately commences viewing of the show in progress; the show title is also placed in the Schedule until the show ends to enable the user the ability to modify the watch frequency to daily or weekly.
- 4.4.2.2.5 The title of a show set to watch is displayed in the Schedule whenever the title is stored in the guide’s database. In the event a show title is not in the database (e.g. the ad related show is too far in the future or a once-a-week show such a ER is set to watch Weekly on Thursdays and it is now Friday) the Schedule will display the channel call letters and tuning number instead of a title. If the start time or duration of a show scheduled to watch is changed, the words “Schedule Changed” will appear instead of a title, a message explaining this will appear in the info. box, and the watch event will be ignored.

4.3 *Locking and Unlocking the Video Window*

- 4.3.1 The Video Window may be locked or unlocked using the Blue action button from the Grid screen or by pressing the PIP key (optional) on the remote from the Grid screen.

The state, once established persists while using other areas of the Guide except that the Editor will always default to Unlocked when entered as an aid to channel editing (the Video Window will return to it's earlier state when the Editor is exited) or when a show is currently recording through a user's cable box which locks the Video Window on the recorded show.

- 4.3.2 There are two ways to change the state of the Video Window:
 - 4.3.2.1 The state is toggled between locked and unlocked by highlighting a channel tile in the Grid's channel column and pressing the Blue action button. Unlocking may occur with any channel tile highlighted, locking a specific channel requires that channel to be highlighted OR
 - 4.3.2.2 Pressing the PIP key on the remote while the Grid is displayed (optional).
- 4.3.3 When the Video Window is locked, a padlock icon appears in the top right corner of the Video Window. When the Video Window is in the locked state, this icon persists on all other screens in the Guide except when entering the Editor where the Video Window is unlocked by default. When the Video Window is unlocked, no icon is displayed.
- 4.3.4 When any tile in the channel column is highlighted, the info. box indicates the state of the Video Window and on which channel it is locked if any.

4.4 Remote Control Key Set

- 4.4.1 Required Remote Control Keys
All interfaces must include the following physical keys:
 - 4.4.1.1 **GUIDE** key for activating and deactivating the GUIDE Plus+ system.
 - 4.4.1.2 **Left / Right / Up / Down** directional controls (arrow keys)
 - 4.4.1.3 **Select** key
 - 4.4.1.4 **Action** buttons: Blue, Green
 - 4.4.1.5 **Info** key for displaying second level program and advertising information.
 - 4.4.1.6 **VCR Plus+** key for using VCR Plus+ recording.
- 4.4.2 Optional Remote Control Keys
Manufacturers may provide the following optional keys:
 - 4.4.2.1 **Menu** key to provide ability to jump the highlight to the Menu Bar from any location in the Guide.
- 4.4.3 Additional IIC Commands Supported by GUIDE Plus+ 98.
These commands may be mapped to "reasonable" remote keys at the discretion of the manufacturer:
 - 4.4.3.1 **Page Up / Down** keys to provide faster navigation up and down lists in the Guide.
- 4.4.4 Suggested Additional Key Mapping.
These command/key combinations may be mapped at the discretion of the manufacturer:
 - 4.4.4.1 **Channel Up / Down** keys may be mapped to directional Up / Down or Page Up / Down commands.
 - 4.4.4.2 **Numeric** keys may be mapped to support direct dialing of channels in the grid.
 - 4.4.4.3 **Record** key may be mapped to support the guide recording feature.

- 4.4.4.4 PIP key may be mapped to support locking and unlocking of the Video Window while in the Grid
- 4.4.4.5 Clear (Cancel, etc.) may be mapped to Last Channel

4.4.5 Key Function in TV Mode

- 4.4.5.1 The required key set keys may have different functions when the TV is in TV mode (watching TV) than they do when the TV is in Guide mode (the Guide is on screen).

4.5 Remote Tables

Table 1 - Watching TV

Remote Key	Watching TV
up key	NA
down key	NA
left key	NA
right key	NA
Select key	NA
Guide key	<ol style="list-style-type: none"> 1. if the Guide has been set up and a full set of lineup and program data has been received, enters the Guide, the Guide Grid appears 2. if the Guide has been set up and lineup and/or program data has not been received, the first Guide setup screen is displayed with a “No Data” message specifying what data has not yet been received appearing in the Info. box region of the screen. The menu bar is visible and accessible allowing the user to enter the Message area to access diagnostic information. 3. if the Guide has not yet been setup, enters the first Guide setup screen
Info	NA
Blue Action Button	NA
Green Action Button	NA
digit keys	NA
VCR Plus+	<ol style="list-style-type: none"> 1. if the Guide has been set up and a full set of lineup and program data has been received, brings up the VCR Plus+ entry screen (this is part of the Record/Watch Schedule screen) without a menu bar 2. if the Guide has been set up and lineup and/or program data has not been received, the first Guide setup screen is displayed with a “No Data” message specifying what data has not yet been received appearing in the Info. box region of the screen. The menu bar is visible and accessible allowing the user to enter the Message area to access diagnostic information. 3. if the Guide has not yet been setup, enters the first Guide setup screen
Optional Keys	
Menu	NA
Record	If desired by manufacturer, operates the same as the VCR Plus+ key
Page up	NA
Page down	NA
Channel up	NA
Channel down	NA
Clear	NA
PIP	NA

Table 2 - Using the Grid Screen

The Grid provides access to two days of show listings organized by time and channel. When a show channel is highlighted, related information is displayed in the Info. Box.

Remote Key	Grid Screen
up key	<ol style="list-style-type: none"> 1. if show tile or channel ad is highlighted, moves up to the next show tile (unless the Last Channel is highlighted, see 2 below) until the topmost visible tile is highlighted, then a full page of new tiles appear with the bottom row highlighted in the same time slot 2. if the Last Channel is highlighted, moves up to the Grid destination button 3. if destination button is highlighted, nothing happens 4. if bottom panel ad highlighted, moves up to top panel ad 5. if top panel ad is highlighted, nothing happens
down key	<ol style="list-style-type: none"> 1. if show tile or channel ad is highlighted, moves down to the next show tile until the last visible show tile is reached, then a full page of new tiles appears with top row highlighted in the same time slot; if the last show tile in the list is highlighted, nothing happens 2. if destination button is highlighted, moves down to the top visible channel in the Grid in the left-hand time slot or on the right-hand time slot if the user had just entered the menu bar from this position 3. if top panel ad is highlighted, moves down to bottom panel ad 4. if bottom panel ad is highlighted, nothing happens
left key	<ol style="list-style-type: none"> 1. if show tile or channel ad in current time slot is highlighted, moves to the channel column; if the right-hand time slot is highlighted, moves left to the left time slot; if a future time in the left-hand time slot is highlighted, smooth scrolls ½ hour of prior time slot listings on screen and moves highlight onto this column 2. if one of top 4 channel column tiles is highlighted, moves highlight to top panel ad; if one of bottom 5 channel column tiles is highlighted, moves highlight to bottom panel ad. 3. if Grid destination button is highlighted, nothing happens as Grid is the leftmost destination button. 4. if panel ad is highlighted, nothing happens
right key	<ol style="list-style-type: none"> 1. if show tile or channel ad in current time slot is highlighted, moves right to the next time slot; if the right-hand time slot is highlighted (and this is not the last time slot in the data), smooth scrolls the next ½ hour time slot on screen and moves highlight onto this column; if show tile is last time slot, nothing happens 2. if channel column tile is highlighted, moves to current time slot for that channel 3. if Grid destination button is highlighted, highlight moves right to the Sort button and the First-level Sort screen is displayed 4. if panel ad is highlighted, moves to the channel in the channel column from which the first panel ad was accessed
Select key	<ol style="list-style-type: none"> 1. if show tile, channel tile, or ad with show related info. is highlighted, exits guide, tunes TV to related channel; if ad does not have related show info., nothing happens 2. if Grid destination tile in Menu Bar is highlighted, redraws the top of the screen in the current time slot (if not currently displayed), highlight jumps to the first entry in the screen
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if highlighting a show tile or channel ad and an "i" icon is displayed in the info. box, causes info. box to expand and display 2nd level information; subsequent presses cycle through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box

	<ol style="list-style-type: none"> if highlight is on a Panel ad, cycles through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box if an “i” icon is not displayed in the info. box (this will always be the case when the highlight is on the Menu bar or a channel logo and may be the case on show tiles and ads), nothing happens
Blue Action Button	<ol style="list-style-type: none"> if show tile or ad with show related info. is highlighted and not previously set to record or watch, Blue action button label is “Watch,” sets the show to watch once, places show in Record/Watch Schedule, changes Blue action button label to “Cancel” and Green action button label to “Schedule,” highlight and time slot header turn orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> if a show tile or ad was just set to record or watch, pressing the Blue action button again <i>without leaving</i> the tile will Cancel the recording or watch scheduling, change the Blue action button label back to “Watch” and the Green action button label to “Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text if show tile or ad with show related info. is highlighted and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens if Panel ad or Channel ad without show related info. is highlighted, the action button label is blank, nothing happens if destination button is highlighted, the Blue action button label is blank, nothing happens if channel in channel column is highlighted, the Video Window state will toggle between locked and unlocked
Green Action Button	<ol style="list-style-type: none"> if show tile or ad with show related info. is highlighted and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> if show tile or ad is highlighted and set to record or watch, the Green action button label is “Schedule,” pressing the Green action button brings up the Record/Watch Schedule screen with this show highlighted if ad without show related info. is highlighted, action bar label is blank, nothing happens. if Grid destination button is highlighted, the Green action bar label is blank, nothing happens if channel in channel column is highlighted, nothing happens
digit keys	<ol style="list-style-type: none"> if a show tile or channel ad is highlighted, digits appear in a dialog box covering the info. box as they are dialed, once the expected number of digits are entered and if the numbers dialed represent an active channel in the user’s channel lineup, the highlight jumps to the show tile in the currently selected time slot; if the dialed channel is not active in the user’s lineup (it is not in the lineup or it is turned off), the message “Channel not available” will appear in the info. box; if the user dials less than the expected number of channels and then presses the Select key, the above outlined behavior will occur, if the user dials less than the expected number of digits and does not press the Select key, the digit dialog box will disappear after a time out

	<p>period and the highlight will not move</p> <p>2. if a Panel ad or a destination button is highlighted, nothing happens</p>
VCR Plus+	functions the same as pressing the Green action button
Optional Keys	
Menu	<p>1. if highlight not on the Menu Bar (on a show tile, a Panel ad, etc.), jumps highlight to the Grid destination button in the Menu Bar, the screen does not redraw</p> <p>2. if highlight on the Menu Bar, moves highlight to Last Channel in the current time slot except as noted in 3 below</p> <p>3. if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the Grid or on a Panel ad</p>
Record	functions the same as pressing the Green action button
Page up	<p>1. if there is a page of channels above, the screen fills with a completely new set of the next 9 channels above, the highlight remains in the same relative location on screen; if there is not a page of data above, the highlight jumps to the top entry of the currently displayed screen; once at the top of the list, highlight moves to the menu bar; from the menu bar, pressing Page Up does nothing</p> <p>2. if a panel ad is highlighted, nothing happens</p>
Page down	<p>1. if Grid destination button highlighted, moves down to the top visible channel in the Grid in the left-hand time slot or on the right-hand time slot if the user had just entered the menu bar from this position</p> <p>2. if a show tile is highlighted and there is a full or partial page of channels below, the screen fills with a new set of the next 9 channels or a partial page of the channels below, the highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available; if the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen; once at the bottom of the list, pressing Page Down does nothing</p> <p>3. if a panel ad is highlighted, nothing happens</p>
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	toggles the state of the Video Window between lock and unlock

Table 3 - Using First-Level Sort Screen

The First-level Sort screens provide access to the sort categories: Movies, Sports and Children's as well as their related sub-categories. Note: the categories are not circular to allow access to the ads. Their order from "left to right" is: Movies, Sports, Children's. When the Sort destination button is highlighted for the first time ever, the Movies category is displayed, thereafter the last category used becomes the default and is displayed when the Sort destination button is highlighted.

Remote Key	First-Level Sort Screens
up key	<ol style="list-style-type: none"> 1. if sub-category tile is highlighted, moves up to the next sub-category tile (unless the top sub-category tile is highlighted, see 2 below) until the topmost visible tile is highlighted, then a full page of new sub-category tiles appear with the bottom row highlighted 2. if the top sub-category tile is highlighted, moves up to the Sort destination button 3. if Sort destination button is highlighted, nothing happens 4. if bottom panel ad highlighted, moves up to top panel ad 5. if top panel ad is highlighted, nothing happens
down key	<ol style="list-style-type: none"> 1. if sub-category tile is highlighted, moves down to the next sub-category tile until the last visible sub-category tile is reached, then a full page of new sub-category tiles appears with the top row highlighted; if the last sub-category tile in the list is highlighted, nothing happens 2. if destination button is highlighted, moves down to the top sub-category, All. 3. if top panel ad is highlighted, moves down to bottom panel ad 4. if bottom panel ad is highlighted, nothing happens
left key	<ol style="list-style-type: none"> 1. if in the Movies category and one of top 4 sub-category tiles highlighted, moves to top panel ad; if one of bottom 5 sub-category tiles is highlighted, moves to bottom panel ad 2. if in the Sports or Children's sub-categories: moves to the top of the category to the left 3. if Sort destination button is highlighted, the highlight moves left to the Grid button and the Grid appears on screen 4. if panel ad is highlighted, nothing happens
right key	<ol style="list-style-type: none"> 1. if in the Movies or Sports sub-categories: moves to the top of the category to the right 2. if in the Children's category, nothing happens 3. if Sort destination button is highlighted, the highlight moves right to the Schedule button and the Record/Watch Schedule appears on screen 4. if panel ad is highlighted, moves to the Movies category tile from which the first panel ad was accessed
Select key	<ol style="list-style-type: none"> 1. if sub-category tile is highlighted, brings up list of shows in that sub-category 2. if Panel ad with show related info. is highlighted, exits guide, tunes TV to related channel; if ad does not have related show info., nothing happens 3. if Sort destination tile in Menu Bar is highlighted, redraws the top of the screen (if not currently displayed), highlight jumps to the first entry in the screen
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if highlight is on a Panel ad, cycles through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 2. if an "i" icon is not displayed in the info. box (this will always be the case when the highlight is on the Menu bar or a sub-category tile and may be the case for Panel ads), nothing happens
Blue Action Button	<ol style="list-style-type: none"> 1. if Panel ad with show related info. is highlighted and not previously set to record or watch, Blue action button label is "Watch," sets the show to watch once, places

	<p>show in Record/Watch Schedule, changes Blue action button label to “Cancel” and Green action button label to “Schedule,” highlight turns orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i></p> <ol style="list-style-type: none"> if a Panel ad was just set to record or watch, pressing the Blue action button again <i>without leaving</i> the Panel ad will Cancel the recording or watch scheduling, change the Blue action button label back to “Watch” and the Green action button label to “Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text if Panel ad with show related info. is highlighted and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens if panel ad without show related info. is highlighted, the action button label is blank, nothing happens if destination button is highlighted, the Blue action button label is blank, nothing happens if a sub-category tile is highlighted, the Blue action button label is blank, nothing happens
Green Action Button	<ol style="list-style-type: none"> if Panel ad with show related info. is highlighted and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> if Panel ad is highlighted and set to record or watch, the Green action button label is “Schedule,” pressing the Green action button brings up the Record/Watch Schedule screen with this show highlighted if ad without show related info. is highlighted, action bar label is blank, nothing happens. if Sort destination button is highlighted, the Green action button label is blank, nothing happens if a sub-category tile is highlighted, the Green action button label is blank, nothing happens
digit keys	NA, no direct dialing feature on this screen
VCR Plus+	functions the same as pressing the Green action button
Optional Keys	
Menu	<ol style="list-style-type: none"> if highlight not on the Menu Bar (on a sub-category tile, a Panel ad, etc.), jumps highlight to the Sort destination button in the Menu Bar, the screen does not redraw if highlight on the Menu Bar, moves highlight to the top sub-category tile, All, except as noted in 3 below if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the Category list or on a Panel ad
Record	functions the same as pressing the Green action button
Page up	<ol style="list-style-type: none"> if there is a page of sub-categories above, the screen fills with a completely new set of the next 9 categories above, the highlight remains in the same relative location on screen; if there is not a page of data above, the highlight jumps to the top entry of the currently displayed screen; once at the top of the list, highlight moves to the

	menu bar; from the menu bar, pressing Page Up does nothing 2. if a panel ad is highlighted, nothing happens
Page down	1. if the destination button is highlighted, moves down to the first visible entry in the screen 2. if a sub-category tile is highlighted and there is a full or partial page of sub-categories below, the screen fills with a new set of the next 9 sub-categories or a partial page of the sub-categories below, the highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available; if the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen; once at the bottom of the list, pressing Page Down does nothing 3. if a panel ad is highlighted, nothing happens
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	nothing happens

Table 4 - Using Second-Level Sort Screen

The second-level Sort screens provide lists of shows for eight days forward for the selected sub-category. The same information provided in the Info. Box when in the Grid for a given show is also available from here. Shows can be scheduled to record or watch.

Note: When a show tile is highlighted, its channel tile is simultaneously highlighted. Any references below to “show tiles” are meant to imply the combination of the show tile and its related channel tile.

Remote Key	Second-Level Sort Screens
up key	<ol style="list-style-type: none"> 1. if show tile is highlighted, moves up to the next show tile (unless the top show tile is highlighted, see 2 below) until the topmost visible show tile is highlighted, then a full page of new show tiles appear with the bottom row highlighted 2. if the top show tile is highlighted, moves up to the Sort destination button 3. if Sort destination button is highlighted, nothing happens 4. if bottom panel ad highlighted, moves up to top panel ad 5. if top panel ad is highlighted, nothing happens
down key	<ol style="list-style-type: none"> 1. if show tile is highlighted, moves down to the next show tile until the last visible show tile is reached, then a full page of new show tiles appears with the top row highlighted; if the last show tile in the list is highlighted, nothing happens 2. if destination button is highlighted, moves down to the top show tile 3. if top panel ad is highlighted, moves down to bottom panel ad 4. if bottom panel ad is highlighted, nothing happens
left key	<ol style="list-style-type: none"> 1. if one of top 4 show tiles in the current day is highlighted, moves to top panel ad; if one of bottom 5 show tiles is highlighted, moves to bottom panel ad 2. if a show tile is highlighted on a future day, moves to the prior day, highlighting the first of the following that exists: a) same time, same channel; b) same time, top channel; c) next time slot, same channel; d) next time slot, top channel 3. if Sort destination button is highlighted, the highlight moves left to the Grid button and the Grid appears on screen 4. if panel ad is highlighted, nothing happens
right key	<ol style="list-style-type: none"> 1. if show tile is highlighted on any but the last day, moves to the next day, highlighting the first of the following that exists: a) same time, same channel; b) same time, top channel; c) next time slot, same channel; d) next time slot, top channel 2. if in the last day of data, nothing happens 3. if Sort destination button is highlighted, the highlight moves right to the Schedule button and the Record/Watch Schedule appears on screen 4. if panel ad is highlighted, moves to the show tile from which the first panel ad was accessed
Select key	<ol style="list-style-type: none"> 1. if show title, or Panel ad with show related info. is highlighted, exits guide, tunes TV to related channel; if ad does not have related show info., nothing happens 2. if Sort destination button is highlighted, brings up the <i>First-level Sort</i> screen and highlights the last selected sub-category
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if highlighting a show tile and an “i” icon is displayed in the info. box, causes info. box to expand and display 2nd level information; subsequent presses cycle through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 2. if highlight is on a Panel ad, cycles through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box

	3. if an “i” icon is not displayed in the info. box, nothing happens
Blue Action Button	<ol style="list-style-type: none"> 1. if show title or Panel ad with show related info. is highlighted and not previously set to record or watch, Blue action button label is “Watch,” sets the show to watch once, places show in Record/Watch Schedule, changes Blue action button label to “Cancel” and Green action button label to “Schedule,” highlight and time slot header turn orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> 2. if a show title or Panel ad was just set to record or watch, pressing the Blue action button again <i>without leaving</i> the tile will Cancel the recording or watch scheduling, change the Blue action button label back to “Watch” and the Green action button label to “Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text 3. if show title or ad with show related info. is highlighted and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens 4. if Panel ad without show related info. is highlighted, the action button label is blank, nothing happens
Green Action Button	<ol style="list-style-type: none"> 1. if show title or Panel ad with show related info. is highlighted and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box background turns red and messages indicates record accepted, info. box background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> 2. if show title or Panel ad is highlighted and set to record or watch, the Green action button label is “Schedule,” pressing the Green action button brings up the Record/Watch Schedule screen with this show highlighted 3. if Panel ad without show related info. is highlighted, action bar label is blank, nothing happens. 4. if Sort destination button is highlighted, the Green action button label is blank, nothing happens
digit keys	NA, no direct dialing feature on this screen
VCR Plus+	functions the same as pressing the Green action button
Optional Keys	
Menu	<ol style="list-style-type: none"> 1. if highlight not on the Menu Bar (on a show tile, a Panel ad, etc.), jumps highlight to the Sort destination button in the Menu Bar, the screen does not redraw 2. if highlight on the Menu Bar, moves highlight to the top show tile, except as noted in 3 below 3. if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the show list or on a Panel ad
Record	functions the same as pressing the Green action button
Page up	1. if there is a page of show tiles above, the screen fills with a completely new set of the next 9 show tiles above, the highlight remains in the same relative location on screen; if there is not a page of data above, the highlight jumps to the top entry of the currently displayed screen; once at the top of the list, highlight moves to the menu bar; from the menu bar, pressing Page Up does nothing

	2. if a panel ad is highlighted, nothing happens
Page down	<ol style="list-style-type: none"> 1. if the destination button is highlighted, moves down to the first visible entry in the screen 2. if a show tile is highlighted and there is a full or partial page of show tiles below, the screen fills with a new set of the next 9 show tiles or a partial page of the show tiles below, the highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available; if the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen; once at the bottom of the list, pressing Page Down does nothing 3. if a panel ad is highlighted, nothing happens
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	nothing happens

Table 5 - Using Record/Watch Schedule Screen

Shows scheduled to record or watch appear in the Record/Watch Schedule. The shows tile backgrounds are color coded to identify if they are scheduled to record (red) or watch (orange). Users may change recording or watch frequencies and remove shows from the schedule from this screen. The VCRPlus+ entry can also be accessed from this screen.

Remote Key	Record/Watch Schedule Screen
up key	<ol style="list-style-type: none"> 1. if scheduled show tile highlighted, moves up to the next scheduled show title (unless the top scheduled show tile is highlighted, see 2 below) until the topmost visible scheduled show tile is highlighted, then a full page of new tiles appear with the bottom row highlighted 2. if the top scheduled show tile is highlighted, moves up to the Schedule destination button 3. if Schedule destination button is highlighted, nothing happens 4. if bottom panel ad highlighted, moves up to top panel ad 5. if top panel ad is highlighted, nothing happens
down key	<ol style="list-style-type: none"> 1. if scheduled show tile is highlighted, moves down to the next scheduled show tile until the last visible scheduled show tile is reached, then a full page of new title tiles appears with top row highlighted; if the last scheduled show tile in the list is highlighted, nothing happens 2. if Schedule destination button is highlighted, moves down to the top scheduled show tile in the Schedule; if no shows in the schedule list, nothing happens 3. if top panel ad is highlighted, moves down to bottom panel ad 4. if bottom panel ad is highlighted, nothing happens
left key	<ol style="list-style-type: none"> 1. if one of top 4 scheduled show tiles is highlighted, moves to top panel ad; if one of bottom 5 scheduled show tiles is highlighted, moves to bottom panel ad; if there are no scheduled show tiles, the panel ads can not be highlighted 2. if Schedule destination button is highlighted, the highlight moves left to the Sort button and the First-level Sort screen appears on screen 3. if panel ad is highlighted, nothing happens
right key	<ol style="list-style-type: none"> 1. if highlight on a scheduled show tile, nothing happens 2. if Schedule destination button is highlighted, the highlight moves right to the Messages button and the Messages list appears 3. if panel ad is highlighted, moves to the scheduled show tile from which the first panel ad was accessed
Select key	<ol style="list-style-type: none"> 1. if scheduled show tile is highlighted, nothing happens 2. if Panel ad with show related info. is highlighted, exits guide, tunes TV to related channel; if ad does not have related show info., nothing happens 3. if Schedule destination tile in Menu Bar is highlighted, redraws the top of the screen (if not currently displayed), highlight jumps to the first entry in the screen
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if highlighting a scheduled show tile and an "i" icon is displayed in the info. box, causes info. box to expand and display 2nd level information; subsequent presses cycle through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 2. if highlight is on a Panel ad, cycles through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 3. if an "i" icon is not displayed in the info. box, nothing happens
Blue Action Button	<ol style="list-style-type: none"> 1. if Panel ad with show related info. is highlighted and not previously set to record or watch, Blue action button label is "Watch," sets the show to watch once, places show in Record/Watch Schedule, changes Blue action button label to "Cancel" and Green

	<p>action button label to “Schedule,” highlight turns orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i></p> <ol style="list-style-type: none"> if a Panel ad was just set to record or watch, pressing the Blue action button again <i>without leaving</i> the Panel ad will Cancel the recording or watch scheduling, change the Blue action button label back to “Watch” and the Green action button label to “Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text if Panel ad with show related info. is highlighted and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens if panel ad without show related info. is highlighted, the action button label is blank, nothing happens if Schedule destination button is highlighted, the Blue action button label is blank, nothing happens if a scheduled show tile is highlighted, the Blue action button is labeled “Remove,” removes the scheduled show from the schedule and it will not be recorded or watched (if currently in progress, the recording will end)
Green Action Button	<ol style="list-style-type: none"> if Panel ad with show related info. is highlighted and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> if Panel ad is highlighted and set to record or watch, the Green action button label is blank, nothing happens if Panel ad without show related info. is highlighted, action bar label is blank, nothing happens. if Schedule destination button is highlighted, the Green action button label is blank, nothing happens if a scheduled show tile is highlighted, the Green action button is labeled “Change,” the recording or watch frequency will cycle through once, daily and weekly options; the selected option remains once the highlight is moved off the tile
digit keys	NA, no direct dialing feature on this screen
VCR Plus+	<ol style="list-style-type: none"> if Panel ad is highlighted, functions the same as pressing the Green action button if Schedule destination button or scheduled show tile is highlighted, brings up the VCRPlus+ entry screen
Optional Keys	
Menu	<ol style="list-style-type: none"> if highlight not on the Menu Bar (on a scheduled show tile or a Panel ad), jumps highlight to the Schedule destination button in the Menu Bar, the screen does not redraw if highlight on the Menu Bar, moves highlight to the top scheduled show tile, except as noted in 3 below if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the scheduled show list or on a Panel ad
Record	<ol style="list-style-type: none"> if Panel ad is highlighted, functions the same as pressing the Green action button if Schedule destination button or scheduled show tile is highlighted, nothing happens
Page up	1. if there is a page of scheduled show tiles above, the screen fills with a completely

	<p>new set of the next 9 scheduled show tiles above, the highlight remains in the same relative location on screen; if there is not a page of data above, the highlight jumps to the top entry of the currently displayed screen; once at the top of the list, highlight moves to the menu bar; from the menu bar, pressing Page Up does nothing</p> <p>2. if a panel ad is highlighted, nothing happens</p>
Page down	<p>1. if the destination button is highlighted, moves down to the first visible entry in the screen</p> <p>2. if a scheduled show tile is highlighted and there is a full or partial page of scheduled show tiles below, the screen fills with a new set of the next 9 scheduled show tiles or a partial page of the scheduled show tiles below, the highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available; if the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen; once at the bottom of the list, pressing Page Down does nothing</p> <p>3. if a panel ad is highlighted, nothing happens</p>
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	nothing happens

Table 6 - Using Messages Screen

When a message tile is highlighted, the related message appears in the Info. Box. Messages may be multiple screens long. Availability of additional pages is indicated by the presence of the “i” icon in the Info. box.

Remote Key	Messages Screen
up key	<ol style="list-style-type: none"> 1. if message tile highlighted, moves up to the next message title (unless the top message tile is highlighted, see 2 below) until the topmost visible message tile is highlighted, then a full page of new tiles appear with the bottom row highlighted 2. if the top message tile is highlighted, moves up to the Messages destination button 3. if Messages destination button is highlighted, nothing happens 4. if bottom panel ad highlighted, moves up to top panel ad 5. if top panel ad is highlighted, nothing happens
down key	<ol style="list-style-type: none"> 1. if message tile is highlighted, moves down to the next message tile until the last visible message tile is reached, then a full page of new title tiles appears with top row highlighted; if the last message tile in the list is highlighted, nothing happens 2. if Messages destination button is highlighted, moves down to the top message tile in the message list 3. if top panel ad is highlighted, moves down to bottom panel ad 4. if bottom panel ad is highlighted, nothing happens
left key	<ol style="list-style-type: none"> 1. if one of top 4 message tiles is highlighted, moves to top panel ad; if one of bottom 5 message tiles is highlighted, moves to bottom panel ad 2. if Messages destination button is highlighted, the highlight moves left to the Schedule button and the Schedule appears on screen 3. if panel ad is highlighted, nothing happens
right key	<ol style="list-style-type: none"> 1. if highlight on a message tile, nothing happens 2. if Messages destination button is highlighted, the highlight moves right to the Editor button and the Editor screen appears 3. if panel ad is highlighted, moves to the message tile from which the first panel ad was accessed
Select key	<ol style="list-style-type: none"> 1. if message tile is highlighted, nothing happens 2. if Panel ad with show related info. is highlighted, exits guide, tunes TV to related channel; if ad does not have related show info., nothing happens 3. if Messages destination tile in Menu Bar is highlighted, redraws the top of the screen (if not currently displayed), highlight jumps to the first entry in the screen
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if highlighting a message tile and an “i” icon is displayed in the info. box, causes info. box to expand and display 2nd level information; subsequent presses cycle through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 2. if highlight is on a Panel ad, cycles through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 3. if an “i” icon is not displayed in the info. box, nothing happens
Blue Action Button	<ol style="list-style-type: none"> 1. if Panel ad with show related info. is highlighted and not previously set to record or watch, Blue action button label is “Watch,” sets the show to watch once, places show in Record/Watch Schedule, changes Blue action button label to “Cancel” and Green action button label to “Schedule,” highlight turns orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> 2. if a Panel ad was just set to record or watch, pressing the Blue action button again

	<p><i>without leaving</i> the Panel ad will Cancel the recording or watch scheduling, change the Blue action button label back to “Watch” and the Green action button label to “Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text</p> <ol style="list-style-type: none"> if Panel ad with show related info. is highlighted and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens if panel ad without show related info. is highlighted, the action button label is blank, nothing happens if Messages destination button is highlighted, the Blue action button label is blank, nothing happens if a message tile other than the Serial Number message is highlighted, the Blue action button is labeled “Remove,” removes the message from the list; the Serial Number message is permanent and can not be removed, when highlighted the Blue action button label is blank, nothing happens
Green Action Button	<ol style="list-style-type: none"> if Panel ad with show related info. is highlighted and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> if show title or Panel ad is highlighted and set to record or watch, the Green action button label is “Schedule,” pressing the Green action button brings up the Record/Watch Schedule screen with this show highlighted if Panel ad without show related info. is highlighted, action bar label is blank, nothing happens. if Messages destination button is highlighted, the Green action button label is blank, nothing happens if a message tile is highlighted, the Green action button label is blank, nothing happens
digit keys	NA, no direct dialing feature on this screen
VCR Plus+	functions the same as pressing the Green action button
Optional Keys	
Menu	<ol style="list-style-type: none"> if highlight not on the Menu Bar (on a message tile or a Panel ad), jumps highlight to the Messages destination button in the Menu Bar, the screen does not redraw if highlight on the Menu Bar, moves highlight to the top message tile, except as noted in 3 below if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the message list or on a Panel ad
Record	functions the same as pressing the Green action button
Page up	<ol style="list-style-type: none"> if there is a page of message tiles above, the screen fills with a completely new set of the next 9 message tiles above, the highlight remains in the same relative location on screen; if there is not a page of data above, the highlight jumps to the top entry of the currently displayed screen; once at the top of the list, highlight moves to the menu bar; from the menu bar, pressing Page Up does nothing if a panel ad is highlighted, nothing happens
Page down	<ol style="list-style-type: none"> if the destination button is highlighted, moves down to the first visible entry in the screen if a message tile is highlighted and there is a full or partial page of message tiles

	below, the screen fills with a new set of the next 9 message tiles or a partial page of the message tiles below, the highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available; if the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen; once at the bottom of the list, pressing Page Down does nothing 3. if a panel ad is highlighted, nothing happens
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	nothing happens

Table 7 - Using Channel Editor Screen

The Channel Editor Screen allows the user to turn channels on or off and remap the channel associated with stations. Any changes made in the Editor are not saved until the user leaves the screen. Prior to leaving the Editor, any changes made on the channel lines may be canceled (all at once) by pressing the Blue action button while a channel line is highlighted prior to leaving the screen.

Remote Key	Channel Editor Screen
up key	<ol style="list-style-type: none"> 1. if channel line highlighted, moves up to the next channel line (unless the top channel line is highlighted, see 2 below) until the topmost visible channel line is highlighted, then a full page of new tiles appear with the bottom row highlighted 2. if the top channel line is highlighted, moves up to the Editor destination button 3. if Editor destination button is highlighted, nothing happens 4. if bottom panel ad highlighted, moves up to top panel ad 5. if top panel ad is highlighted, nothing happens
down key	<ol style="list-style-type: none"> 1. if channel line is highlighted, moves down to the next channel line until the last visible channel line is reached, then a full page of new title tiles appears with top row highlighted; if the last channel line in the list is highlighted, nothing happens 2. if Editor destination button is highlighted, moves down to the top channel line in the Editor 3. if top panel ad is highlighted, moves down to bottom panel ad 4. if bottom panel ad is highlighted, nothing happens
left key	<ol style="list-style-type: none"> 1. if one of top 4 channel lines is highlighted, moves to top panel ad; if one of bottom 5 channel lines is highlighted, moves to bottom panel ad; if there are no channel lines, the panel ads can not be highlighted 2. if Editor destination button is highlighted, the highlight moves left to the Messages button and the Messages list appears on screen 3. if Panel ad is highlighted, nothing happens
right key	<ol style="list-style-type: none"> 1. if highlight on a channel line, nothing happens 2. if Editor destination button is highlighted, the highlight moves right to the Setup button and the First Setup screen appears 3. if Panel ad is highlighted, moves to the channel line from which the first Panel ad was accessed
Select key	<ol style="list-style-type: none"> 1. if channel line is highlighted, nothing happens 2. if Panel ad with show related info. is highlighted, exits guide, tunes TV to related channel; if ad does not have related show info., nothing happens 3. if Editor destination tile in Menu Bar is highlighted, redraws the top of the screen (if not currently displayed), highlight jumps to the first entry in the screen
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if highlight is on a Panel ad, cycles through any additional info. screens; once last screen of information is displayed, pressing the info. key closes the expanded info. box 2. if an "i" icon is not displayed in the info. box, nothing happens
Blue Action Button	<ol style="list-style-type: none"> 1. if Panel ad with show related info. is highlighted and not previously set to record or watch, Blue action button label is "Watch," sets the show to watch once, places show in Record/Watch Schedule, changes Blue action button label to "Cancel" and Green action button label to "Schedule," highlight turns orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> 2. if a Panel ad was just set to record or watch, pressing the Blue action button again <i>without leaving</i> the Panel ad will Cancel the recording or watch scheduling, change the Blue action button label back to "Watch" and the Green action button label to

	<p>“Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text</p> <ol style="list-style-type: none"> if Panel ad with show related info. is highlighted and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens if panel ad without show related info. is highlighted, the action button label is blank, nothing happens if Editor destination button is highlighted, the Blue action button label is blank, nothing happens if a channel line is highlighted, the Blue action button label is “Cancel,” cancels any changes made since entering the Editor
Green Action Button	<ol style="list-style-type: none"> if Panel ad with show related info. is highlighted and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> if Panel ad is highlighted and set to record or watch, the Green action button label is blank, nothing happens if Panel ad without show related info. is highlighted, action bar label is blank, nothing happens. if Editor destination button is highlighted, the Green action button label is blank, nothing happens if a channel line is highlighted, the Green action button is labeled “On/Off,” toggles the state of the channel between on and off
digit keys	<ol style="list-style-type: none"> if a channel line is highlighted, the channel numbers in the currently selected channel line disappear and the new digits appear as dialed; the dialed number registers once the highlight is moved off the channel tile (up, down, left, menu, Guide) or if the user presses the Select key, or Green action button; changes are not saved until the Editor screen is left if a Panel ad or a destination button is highlighted, nothing happens
VCR Plus+	<ol style="list-style-type: none"> if Panel ad is highlighted, functions the same as pressing the Green action button if Editor destination button or channel line is highlighted, nothing happens
Optional Keys	
Menu	<ol style="list-style-type: none"> if highlight not on the Menu Bar (on a channel line or a Panel ad), jumps highlight to the Editor destination button in the Menu Bar, the screen does not redraw if highlight on the Menu Bar, moves highlight to the top channel line, except as noted in 3 below if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the scheduled show list or on a Panel ad
Record	functions the same as pressing the Green action button
Page up	<ol style="list-style-type: none"> if there is a page of channel lines above, the screen fills with a completely new set of the next 9 channel lines above, the highlight remains in the same relative location on screen; if there is not a page of data above, the highlight jumps to the top entry of the currently displayed screen; once at the top of the list, highlight moves to the menu bar; from the menu bar, pressing Page Up does nothing if a panel ad is highlighted, nothing happens
Page down	<ol style="list-style-type: none"> if the destination button is highlighted, moves down to the first visible entry in the screen

	<p>2. if a channel line is highlighted and there is a full or partial page of channel lines below, the screen fills with a new set of the next 9 channel lines or a partial page of the channel lines below, the highlight remains in the same relative location on screen or on the last entry on the new screen if the relative position is not available; if the highlight is on the last screen of data and the Page Down key is pressed, the highlight jumps to the last entry in that screen; once at the bottom of the list, pressing Page Down does nothing</p> <p>3. if a panel ad is highlighted, nothing happens</p>
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	nothing happens

Table 8 - Using Setup Screens

The Setup screens allow the user to access Setup and the internal Demo, modify country, ZIP or Postal code, cable or VCR settings. The initial setup screen is the only one with a Menu Bar. Once the user passes the first setup screen, they can not exit setup without going completely through it.

Remote Key	Setup Screens
up key	1. moves highlight up in an on-screen list 2. displays next item above in a “hidden” list (e.g. ZIP/Postal code digits, VCR, Cable Box manufacturer lists)
down key	1. moves highlight down in an on-screen list 2. displays next item below in a “hidden” list (e.g. ZIP/Postal code digits, VCR, Cable Box manufacturer lists)
left key	moves highlight left in the ZIP/Postal Code screen, otherwise, nothing happens
right key	moves highlight left in the ZIP/Postal Code screen, otherwise, nothing happens
Select key	executes action associated with highlighted selection
Guide key	1. if on the first Setup screen, exits the guide, and tunes TV to channel displayed in the Video Window 2. if on any other Setup screen, nothing happens
Info	nothing happens
Blue Action Button	nothing happens
Green Action Button	nothing happens
digit keys	enable direct entry ZIP/Postal Codes, on all other screens do nothing
VCR Plus+	nothing happens
Optional Keys	
Menu	1. on initial setup screen, jumps highlight to the Setup destination button 2. on all other screens, nothing happens
Record	nothing happens
Page up	nothing happens
Page down	nothing happens
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	nothing happens

Table 9 - Using the Menu Bar

The Menu Bar provides access to all of the Guide's screens. Highlighting a destination button automatically brings up the associated screen. The Menu is not circular, the Grid button is the leftmost destination button, Setup the rightmost.

Remote Key	Menu Bar
up key	nothing happens
down key	<ol style="list-style-type: none"> 1. if Grid destination button highlighted, moves down to the top visible channel in the Grid in the left-hand time slot or on the right-hand time slot if the user had just entered the menu bar from this position 2. if any other destination button is highlighted, moves down to the first visible entry in the screen
left key	<ol style="list-style-type: none"> 1. if Grid destination button is highlighted, nothing happens as Grid is the leftmost destination button 2. if any other destination button is highlighted, the highlight moves left to the adjacent destination button
right key	<ol style="list-style-type: none"> 1. if Setup destination button is highlighted, nothing happens as Setup is the rightmost destination button 2. if any other destination button is highlighted, the highlight moves left to the adjacent destination button
Select key	if any destination button is highlighted, redraws the top of the screen (if not currently displayed), highlight jumps to the first entry in the screen
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	nothing happens
Blue Action Button	nothing happens
Green Action Button	nothing happens
digit keys	nothing happens
VCR Plus+	<ol style="list-style-type: none"> 1. if Schedule destination button is highlighted, brings up the VCRPlus+ entry screen 2. if on any other destination button, nothing happens
Optional Keys	
Menu	<ol style="list-style-type: none"> 1. if Grid destination button highlighted, moves down to the top visible channel in the Grid in the left-hand time slot or on the right-hand time slot if the user had just entered the menu bar from this position, except as noted in 3 below 2. if any other destination button is highlighted, moves down to the first visible entry in the screen, except as noted in 3 below 3. if highlight was placed on the Menu Bar by a prior press of the Menu key and no other key presses have occurred while the highlight was on the Menu Bar, jumps highlight to where the highlight was last in the screen
Record	nothing happens
Page up	nothing happens
Page down	<p>Same as the down key:</p> <ol style="list-style-type: none"> 1. if Grid destination button highlighted, moves down to the top visible channel in the Grid in the left-hand time slot or on the right-hand time slot if the user had just entered the menu bar from this position 2. if any other destination button is highlighted, moves down to the first visible entry in the screen
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)

PIP	toggles the state of the Video Window between lock and unlock if in the Grid screen, otherwise nothing happens
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Table 10 - Using Expanded Info Boxes

The Info. Box provides additional information about shows, ads, and product function. When expanded, whether auto-expanded by highlighting a Panel Ad or by pressing the “i” button, the keys function as outlined below. There may be a series of expanded Info. Boxes, pressing the “i” button cycles through all info. screens until the last one is reached; pressing the “i” button from the last screen closes the Info. Box.

Remote Key	Menu Bar
up key	nothing happens
down key	nothing happens
left key	nothing happens
right key	nothing happens
Select key	<ol style="list-style-type: none"> 1. if Info. Box expanded from a highlighted show tile, or ad with show related info., exits guide, tunes TV to related channel; if ad does not have related show info. nothing happens 2. if Info. Box expanded by pressing “i” button in Schedule or Messages screens, nothing happens
Guide key	exits the guide, and tunes TV to channel displayed in the Video Window
Info	<ol style="list-style-type: none"> 1. if there are additional info. screens to follow, replaces current info. screen with the next 2. if the last info. screen is currently on screen, closes expanded info. screen
Blue Action Button	<ol style="list-style-type: none"> 1. if Info. Box expanded from a highlighted show tile or ad with show related info. and not previously set to record or watch, Blue action button label is “Watch,” sets the show to watch once, places show in Record/Watch Schedule, changes Blue action button label to “Cancel” and Green action button label to “Schedule,” highlight and time slot header turn orange, info. box background turns orange and message indicates record accepted, tunes to the show channel if the show is on now; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i> 2. if Info. Box expanded from a highlighted show title or ad that was just set to record or watch, pressing the Blue action button again <i>without leaving</i> the tile will Cancel the recording or watch scheduling, change the Blue action button label back to “Watch” and the Green action button label to “Record,” highlighting back to the standard highlighting, info. box returns to gray background with original text 3. if Info. Box was expanded from a highlighted show title or ad with show related info. and was <i>previously</i> set to record or watch, the Blue action button label is blank, nothing happens 4. if Info. Box was expanded from a highlighted Panel ad or Channel ad without show related info., the action button label is blank, nothing happens 5. if Info. Box was expanded from a scheduled show tile in the Schedule, the Blue action button is labeled “Remove,” removes the scheduled show from the schedule and it will not be recorded or watched (if currently in progress, the recording will end) 6. if Info. Box was expanded from a message tile in the Messages screen other than the Serial Number message, the Blue action button is labeled “Remove,” removes the message from the list; the Serial Number message is permanent and can not be removed
Green Action Button	<ol style="list-style-type: none"> 1. if Info. Box expanded from a show tile or ad with show related info. and not previously set to record or watch, Green action button label is “Record,” sets the show to record once (records immediately if the show is on now), places it in the Record/Watch Schedule, changes Green action button label to “Schedule,” Blue action button label to “Cancel,” highlight and time slot header turn red, info. box

	<p>background turns red and message indicates record accepted; <i>Note: if a show in this time slot was already set to record or watch, the actions listed above do not occur and a conflict message appears in the Info. box</i></p> <ol style="list-style-type: none"> if Info. Box expanded from show tile or ad and set to record or watch, the Green action button label is "Schedule," pressing the Green action button brings up the Record/Watch Schedule screen with this show highlighted if Info. Box was expanded from an ad without show related info., action bar label is blank, nothing happens. if Info. Box expanded from a scheduled show tile in the Schedule, the Green action button label is blank, nothing happens if Info. Box expanded from a message tile in the Messages screen, the Green action button label is blank, nothing happens
digit keys	nothing happens
VCR Plus+	nothing happens
Optional Keys	
Menu	jumps highlight to the current screen's destination button in the Menu Bar, the screen does not redraw
Record	functions the same as pressing the Green action button
Page up	nothing happens
Page down	nothing happens
Channel up	mapped to Directional Up or Page Up
Channel down	mapped to Directional Down or Page Down
Clear	exits the Guide and displays the program that was viewed before the Guide was entered (Last Channel)
PIP	toggles the state of the Video Window between lock and unlock if in the Grid screen, otherwise nothing happens

History			
v1.42stv	980213	T. Ward	Sent to Sony TV

4.6 Guide Screens

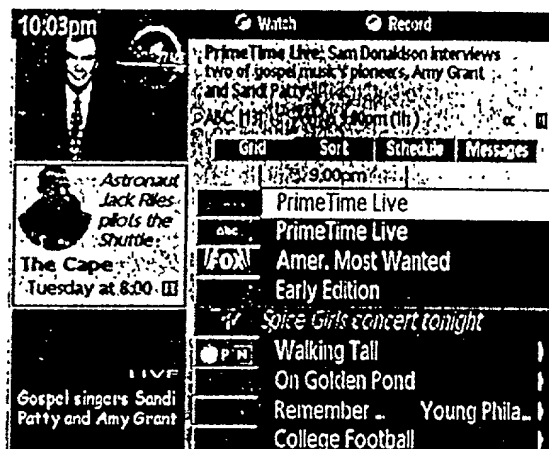
Note: The clock should read 9:03 not 10:03 upon entering the Guide

These screens are for illustrative purposes only and are not to be used for marketing or promotional material purposes.

Screen 1 - Entering the Guide

Upon first entering the Guide:

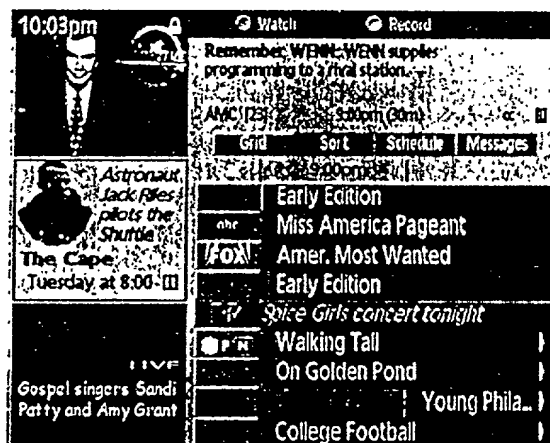
- The Grid appears.
- The channel the user is watching appears in the Video Window, it's title tile is highlighted, and appears in the top slot in the grid, labeled "Last Channel"
- The currently selected time slot is labeled in black "9:00."



Screen 2 - Scrolling Down

The user scrolls down using the down directional arrow key.

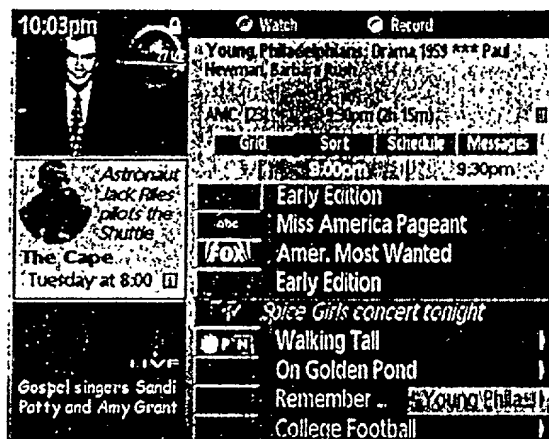
- The currently highlighted show is displayed with dark text on a light background



Screen 3- Scrolling into the Future

Using the right directional arrow key, the highlight is moved into the next time slot.

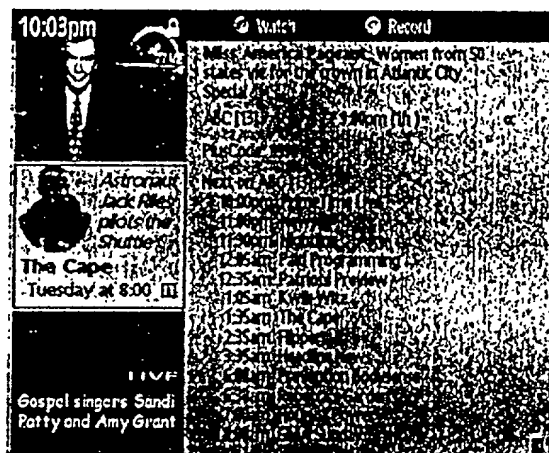
- The "9:30" time slot is now labeled in black.
- The next show on the same channel is highlighted.



Screen 4 - Expanded Info. Box

Pressing the Info. key expands the info. box from any show tile.

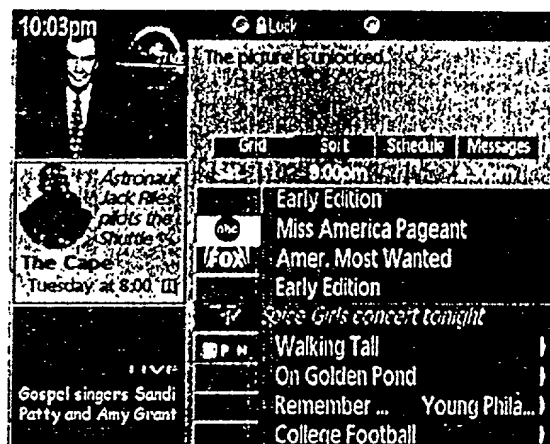
- The expanded info. box covers the entire grid area.
- Additional show information, if any is available, is displayed.
- The PlusCode is displayed.
- The Shows on Next are listed, filling the remainder of the screen.
- Pressing the Info. key again closes the expanded info box.



Screen 5 - Unlocked Video Window

Scrolling to the column of channel tiles allows the user to lock or unlock the Video Window.

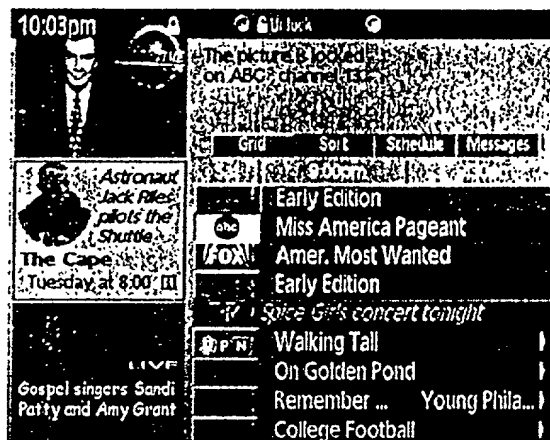
- Here the Video Window is unlocked as indicated by the message in the info. box and the lack of any icon in the Video Window.



Screen 6 - Locking the Video Window

Pressing the Blue action button causes the Video Window to lock.

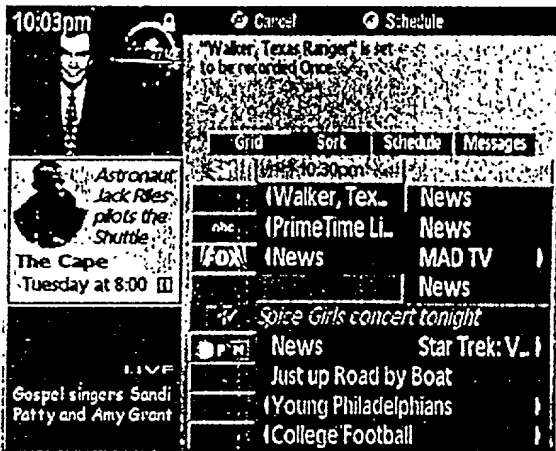
- The lock icon appears in the Video Window.
- The text in the info. box indicates which channel the Video Window is locked onto.
- The user may unlock the Video Window by pressing the Blue action button again.



Screen 7 - Recording

Pressing the Green action button schedules a highlighted program to be recorded once. The tile highlight turns red, a confirmation message appears in the info. box, the action button labels change

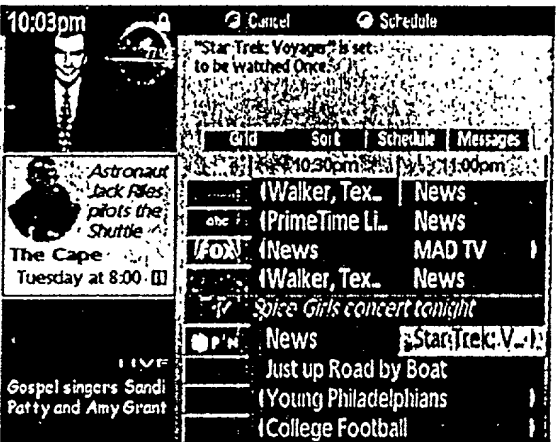
- Pressing the Green action button from any show scheduled to record or watch will allow the user to enter the Schedule to modify the recording frequency (once, daily, weekly)
- Without moving the highlight, pressing the Blue action button will cancel the recording.



Screen 8 - Watch Scheduling

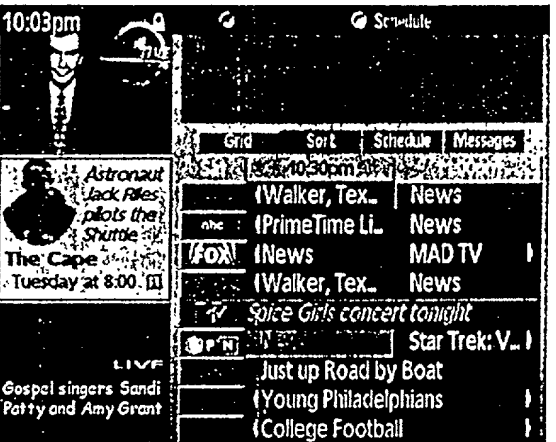
Pressing the Blue action button schedules a highlighted program to be watched once. The tile highlight turns orange, a confirmation message appears in the info. box, the action button labels change.

- Pressing the Green action button from any show scheduled to record or watch will allow the user to enter the Schedule to modify the recording frequency (once, daily, weekly).
- Without moving the highlight, pressing the Blue action button will cancel the scheduled watch.



Screen 9 - Record or Watch Clash

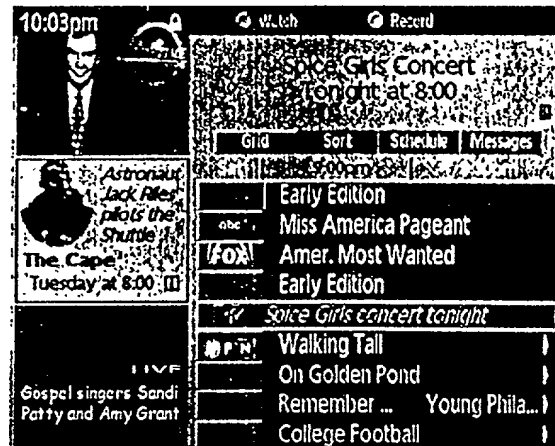
When a user attempts to schedule a recording or watch event in a time slot when a show is already scheduled to be recorded or watched, a conflict message will appear in the info. box with a red background, the tile highlight does not change, the Blue action button label is blank, the Green action button label changes to "Schedule." The user may enter the Schedule if they wish to remove the conflicting show if they wish to record or schedule a different show to watch.



Screen 10 - Channel Ad Highlighted

When a user scrolls onto a Channel Ad:

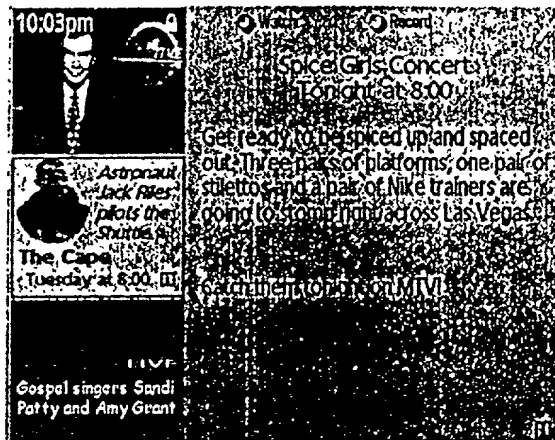
- The highlight is a yellow border around the tile.
- Additional ad text fills the info. box
- The user may schedule an ad related show to record or watch.



Screen 11 - Channel Ad Expanded Info.

Pressing the Info. key with a channel ad highlighted expands the info. box displaying additional advertising text.

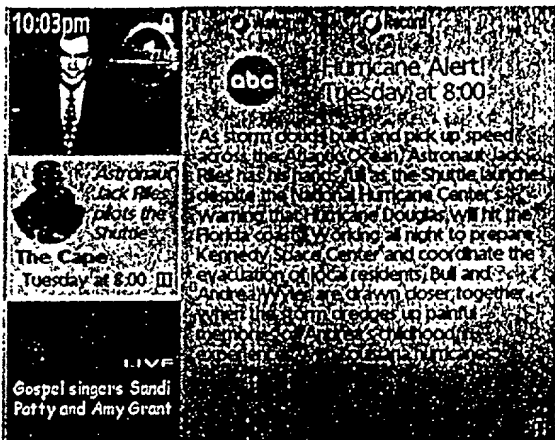
- Pressing the Info. key again will bring up additional screens of ad information until the last one is displayed, then pressing the Info key will close the expanded info. box



Screen 12 - Panel Ad Highlighted

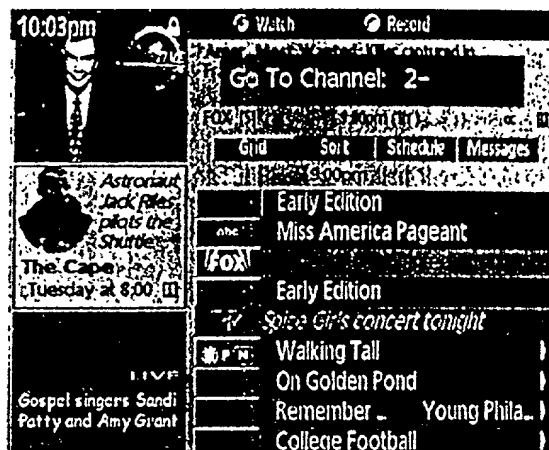
The user may scroll left from any screen to highlight a panel ad.

- The highlight is a yellow border around the ad
- The info. box automatically expands to cover the grid.
- The user may schedule an ad related show to record or watch.
- Pressing the Info. key will bring up additional screens of ad information until the last one is displayed, then pressing the Info. key will close the expanded info. box.



Screen 13 - Direct Dialing

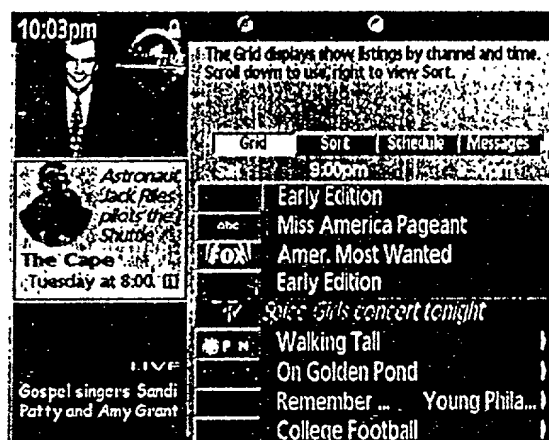
The user may jump to a channel within the grid by dialing its tuning channel number. The user dials the desired channel using the number keys on the remote. The highlight will jump to the channel. If the channel does not exist in the lineup or is turned off, feedback will appear in the info box.



Screen 14 - Navigation Menu - Grid

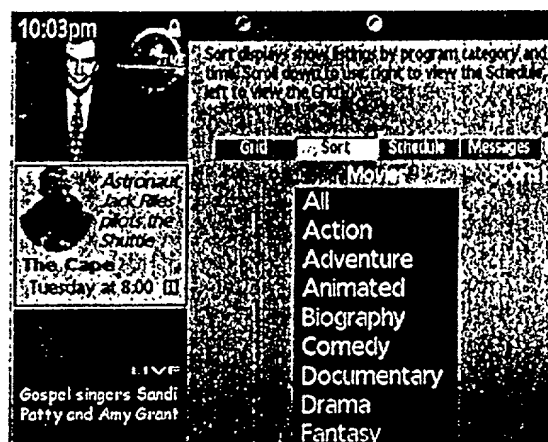
The Navigation Menu provides access to all other areas of the Guide. The menu is accessed by scrolling onto it, paging up to it or pressing the menu button.

- The Grid destination button is highlighted.
- Help text instructs the user.



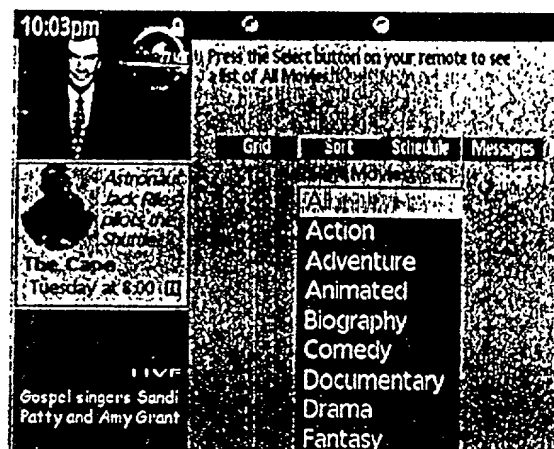
Screen 15 - Navigation Menu - Sort

Scrolling right to the Sort destination button on the Menu automatically displays the first level Sort screen. The last category used (Movies, Sports or Children's) is displayed.



Screen 16 - Entering the Movies Sort Screen

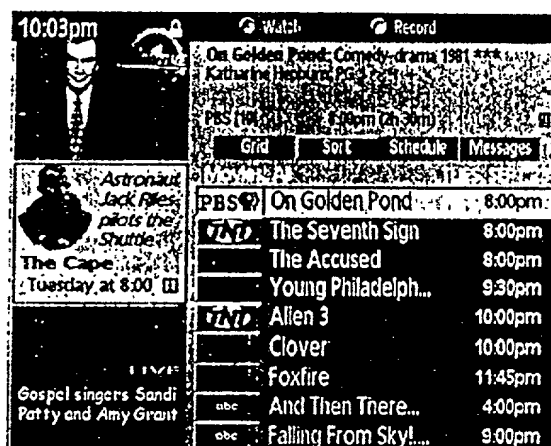
Scrolling down off the Menu places the highlight on the first sub-category for the displayed category (the first sub-category is always "All."). Scrolling right enables the user to access the other categories Sports or Children's



Screen 17 - Entering the Movies Sort List

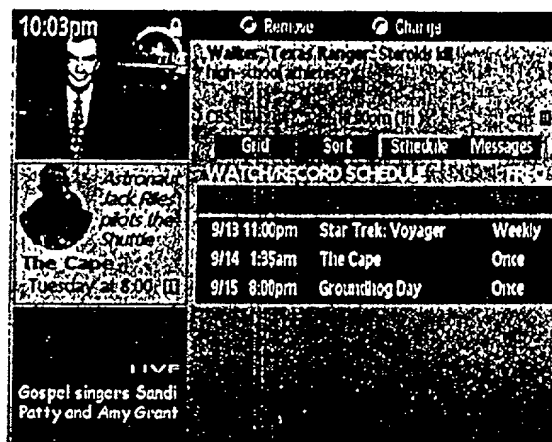
Pressing the Select key while on a desired sub-category tile displays the show listings for the show category.

- Shows are listed in chronological order.
- Shows may be recorded or scheduled to watch from this screen.
- Scrolling right will display the next day's programming for this sub-category



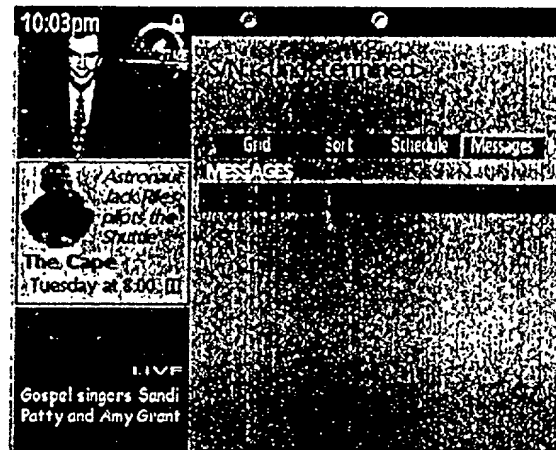
Screen 18 - The Watch/Record Schedule

All shows scheduled to record or watch are displayed in the Schedule. Shows may be removed or frequencies set (once, daily, weekly) from this screen.

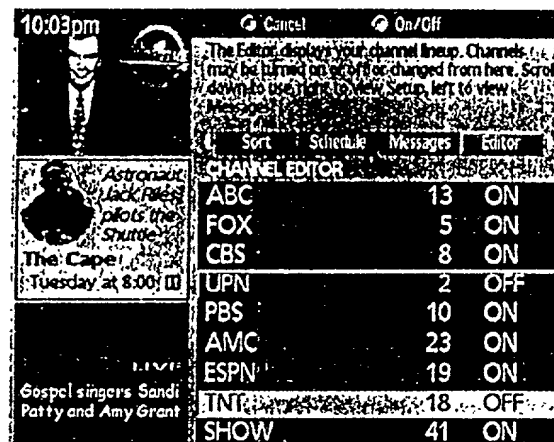


Screen 19 - The Messages Screen

Messages are displayed in the Messages screen.
The serial number tile is always available.

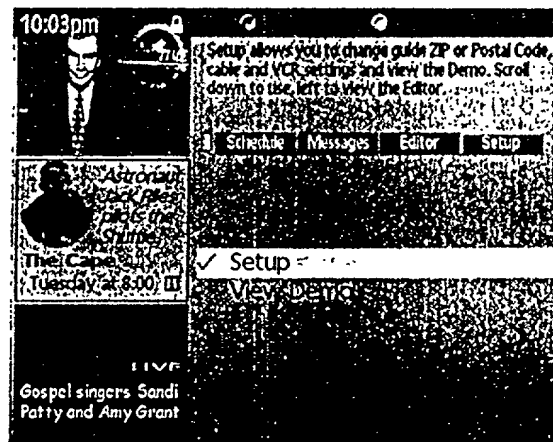
Screen 20 - The Editor Screen

The user may turn channels on or off and may change the channel mapping from this screen.

Screen 21 - The Setup Entry Screen

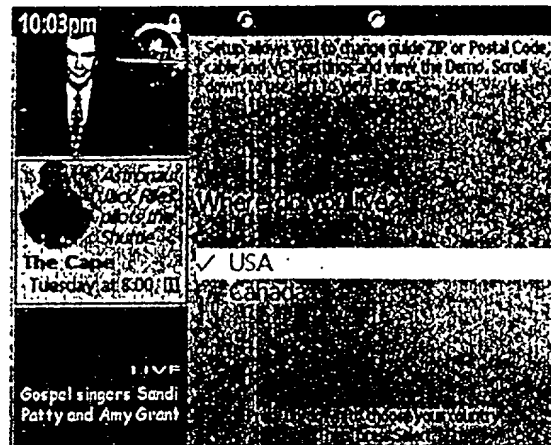
The setup entry screen may be accessed by pressing the Guide button while watching TV before the initial setup is done, from within the manufacturer menus, or from within the Guide by highlighting the Setup Menu Bar button. From this screen the user can:

- Complete initial setup.
- Modify setup settings.
- View the Demo.

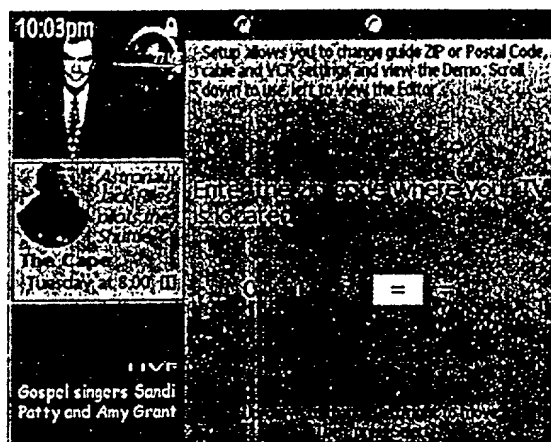


Screen 22 - Setup Country

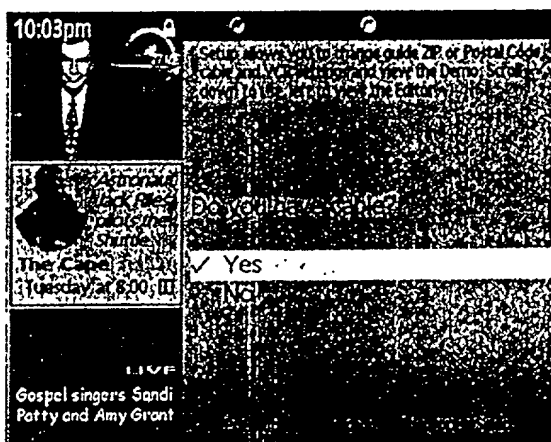
The user selects the country in which they live by scrolling up or down, then they press the Select key.

Screen 23 - Setup ZIP or Postal Code

The next setup screen asks for the user's ZIP or Postal Code depending upon their country.

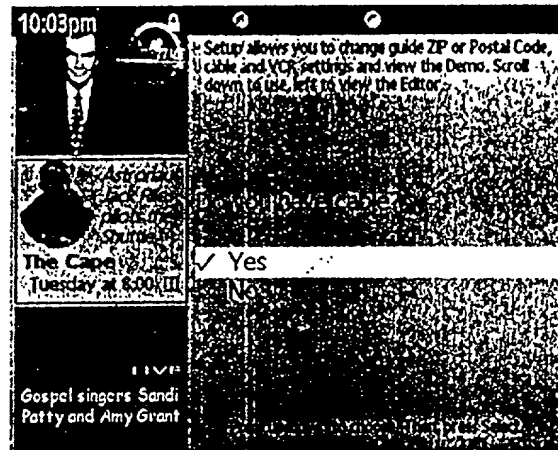
Screen 24 - Setup Cable

Then the user indicates whether or not they have cable.

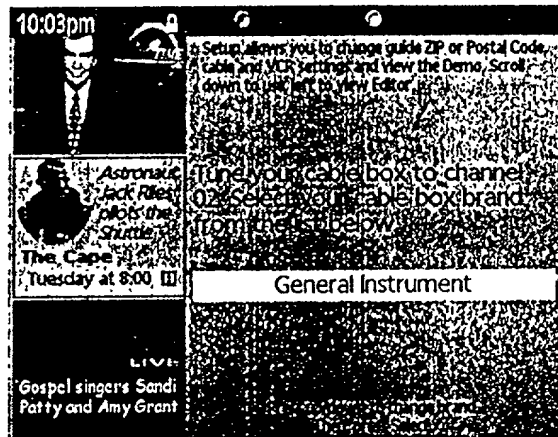


Screen 25 - Cable Box Inquiry

If the user has cable, they are asked whether they have a cable box. If they don't have cable this screen is not displayed.

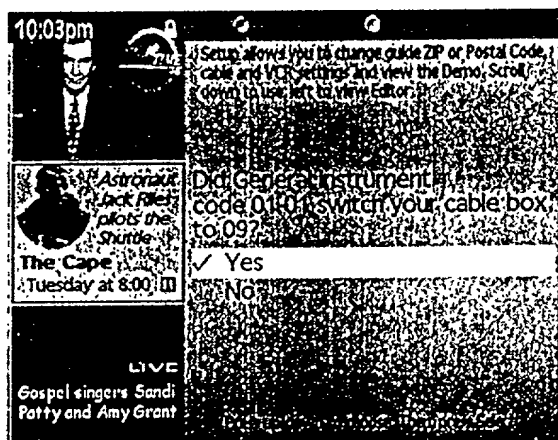
Screen 26 - Cable Box Brand Selection

If the user has a cable box, they are asked to choose their brand of cable box from an on-screen list. Pressing the Select key begins a test of the IR control of the cable box.

Screen 27 - Cable Box IR Control Test Confirm

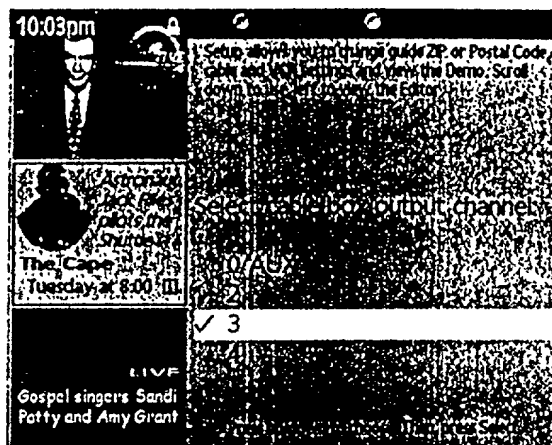
The user indicates whether their cable box was tuned to channel 9.

- If yes, Screen 28 is displayed after pressing Select
- If no, another code is tested, until all codes are tried.
- If no code correctly controls the cable box, the user is presented with a screen that asks them whether they wish to skip setting up their cable box or if they wish to try again. (See Screen 32 below for the VCR equivalent screen.) Trying again starts at the beginning of the IR codes.

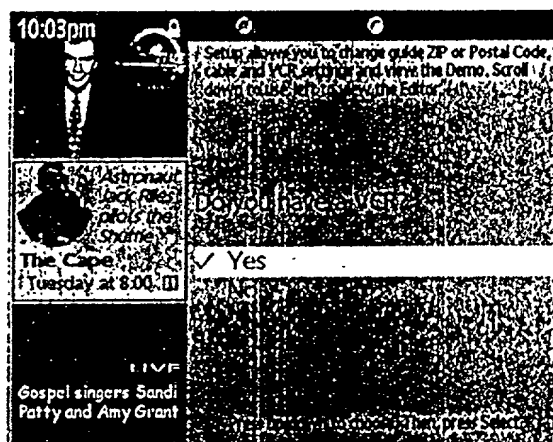


Screen 28 - Select Cable Output Channel

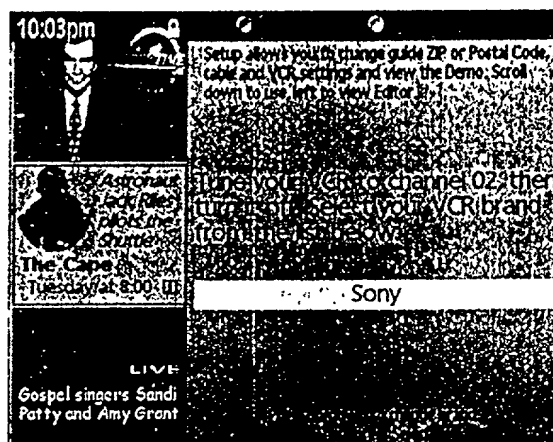
The user indicates on which channel their cable box outputs its signal.

Screen 29 - VCR Inquiry

Setup then asks whether the user has a VCR

Screen 30 - VCR Brand Selection

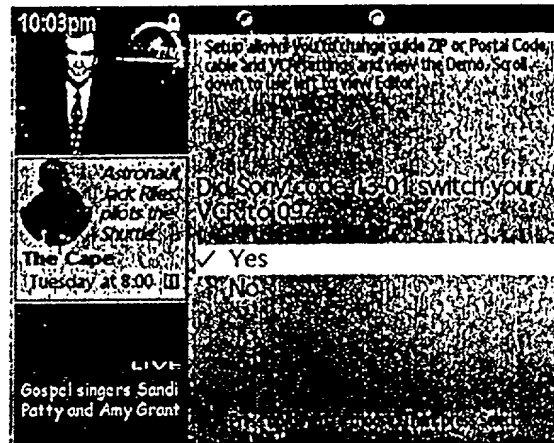
If the user has a VCR, they are asked to choose their brand of VCR from an on-screen list. Pressing the Select key begins a test of the IR control of the VCR.



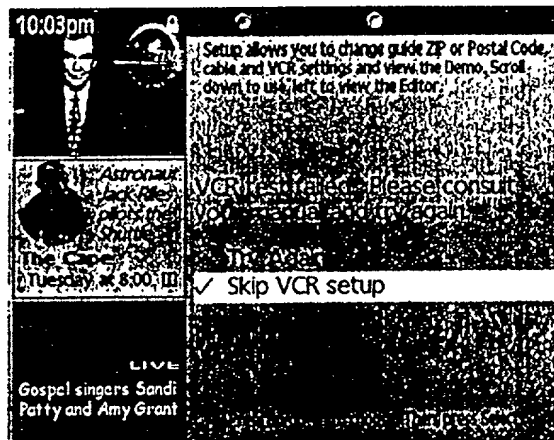
Screen 31 - VCR IR Control Test Confirm

The user indicates whether their VCR was tuned to channel 9.

- If yes, setup is complete and Screen 33 is displayed after pressing Select.
- If no, another code is tested, until all codes are tried.
- If no code correctly controls the VCR, the user is presented with Screen 32.

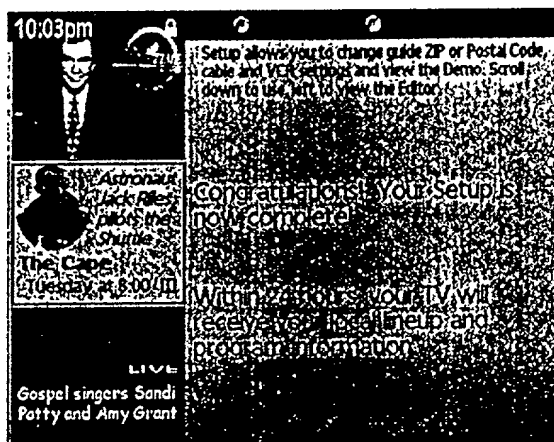
Screen 32 - VCR Skip/Retry

If no code correctly controls the VCR the user is asked whether they wish to skip setting up their VCR or if they wish to try again. Trying again starts at the beginning of the IR codes.

Screen 33 - Congratulations! Setup Complete

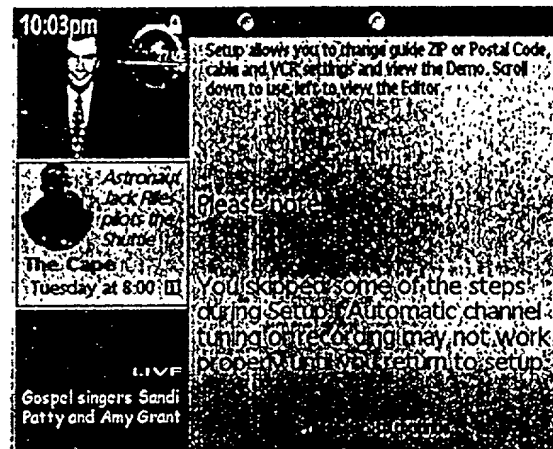
Once the user has setup or skipped VCR setup, the following Congratulations screen is displayed.

- This screen notifies the user that they may need up to 24 hours to receive data.

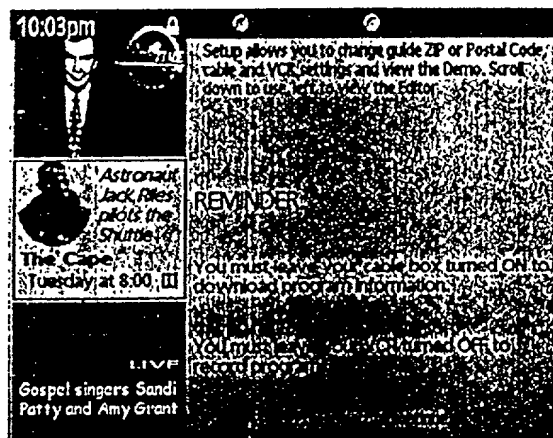


Screen 34 - Skipped Step Reminder

If a user skipped setting up their VCR or Cable box, this screen is displayed after the Congratulations screen to remind them that recording or channel tuning may not work properly.

Screen 35 - Operational Reminder

This final reminder screen is displayed for all users after the Congratulations screen to remind (or inform for the first time) the user to leave their cable box on to download data (displayed only if the user has indicated they have a cable box) and to leave their VCR turned off to record (displayed only if the user has a VCR).

**History**

v1.42stv 980213 T. Ward Sent to Sony TV

**DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATIONS**

PATENT

Docket No. : 39674/JEC/I148

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **SYSTEMS AND METHODS FOR DISPLAYING AND RECORDING CONTROL INTERFACE WITH TELEVISION PROGRAMS, VIDEO, ADVERTISING INFORMATION AND PROGRAM SCHEDULING INFORMATION**, the specification of which is attached hereto unless the following is checked:

___ was filed on ___ as United States Application Number or PCT International Application Number ___ and was amended on ___ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of the foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

<u>Application Number</u>	<u>Country</u>	<u>Filing Date (day/month/year)</u>	<u>Priority Claimed</u>
PCT/US97/23852	PCT	19.12.97	Yes

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

<u>Application Number</u>	<u>Filing Date</u>
60/034,784	12/19/96
60/055,237	08/12/97
60/068,375	12/22/97
60/053,330	07/21/97
60/055,761	08/14/97
60/061,119	10/06/97
60/071,811	01/20/98
60/071,812	01/20/98
60/071,882	01/20/98

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

<u>Application Number</u>	<u>Filing Date</u>	<u>Patented/Pending/Abandoned</u>
09/120,488	July 21, 1998	pending

**DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATIONS**

Docket No. 39674/JEC/I148

POWER OF ATTORNEY: I hereby appoint the following attorneys and agents of the law firm CHRISTIE, PARKER & HALE, LLP to prosecute this application and any international application under the Patent Cooperation Treaty based on it and to transact all business in the U.S. Patent and Trademark Office connected with either of them in accordance with instructions from the assignee of the entire interest in this application; or from the first or sole inventor named below in the event the application is not assigned; or from __ in the event the power granted herein is for an application filed on behalf of a foreign attorney or agent.

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The authority under this Power of Attorney of each person named above shall automatically terminate and be revoked upon such person ceasing to be a member or associate of or of counsel to that law firm.

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I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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